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information about hazardous waste management facilities

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16. ABSTRACT

This document contains information on 64 hazardous waste management facilities known to EPA as of August 1974. The information is presented in the form of a standard resume for each facility. The information was obtained through both telephone interviews with knowledgeable representatives of firms operating hazardous waste management facilities, and facility site visits. The register is not all inclusive and the comprehensiveness of the information on each facility varies depending on the method of information acquistion that was used. A continuing effort using the same information acquisition tecyniques is being made by the Technology Assessment Staff of the Hazardous Waste Management Division, not only to improve the comprehensiveness of the information in the facility resumes, but also to expand the register to include other hazardous waste management facilities. Reissuance is anticipated approximately on an annual basis.

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INFORMATION ABOUT HAZARDOUS WASTE MANAGEMENT FACILITIES

This solid waste management inventory (SW-145)

was compiled by

DONALD FARB

and

S. DANIEL WARD

U.S. ENVIRONMENTAL PROTECTION AGENCY

February 1975

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Preface

This document contains information on 64 hazardous waste management facilities known to EPA as of August 1974. The information is presented in the form of a standard resume for each facility. The information was obtained through both telephone interviews with knowledgeable representatives of firms operating hazardous waste management facilities, and facility site visits. The register is not all inclusive and the comprehensiveness of the information on each facility varies depending on the method of information acquisition that was used. A continuing effort using the same information acquisition techniques is being made by the Technology Assessment Staff of the Hazardous Waste Management Division, not only to improve the comprehensiveness of the information in the facility resumes, but also to expand the register to include other hazardous waste management facilities. Reissuance is anticipated approximately on an annual basis.

The principal use of this document is expected to be as a source of information for providing guidance to hazardous waste generators who request assistance concerning proper waste handling procedures. It is anticipated that other uses for this information will be found by regulatory agency staffs concerned with hazardous waste management since a knowledge of conditions in the field is an important ingredient in the implementation of an effective regulatory policy. Little of this type of information has heretofore been available. By publishing this information, EPA is not vouching for its accuracy nor of the environmental adequacy of the operations represented. Most of the information has been listed essentially as received by telephone interview and as such has not been verified by EPA. Those wishing to make use of the listed facilities for disposal, are cautioned to satisfy themselves of the environmental suitability of the methods and processes used. The absence of any particular facility in this document does not indicate disapproval of the facility's operation by EPA. Absence is most frequently indicative of a lack of knowledge of the existence of a facility on the part of the Technology Assessment Staff, therefore, submission of information on existing facilities not included in this document is solicited. Inclusion in this registry is based solely on EPA awareness of the existence of the facility and an understanding that the facility does in fact treat and/or dispose of hazardous type wastes. The term "hazardous waste" means any waste or combination of wastes which pose a substantial present or potential hazard to human health or living organisms because such wastes are lethal, nondegradable, or persistent in nature; may be biologically magnified; or may otherwise cause or tend to cause detrimental cumulative effects. General categories of hazardous waste are toxic chemical, flammable, radioactive, explosive, and biological. These wastes can take the form of solids, sludges, liquids, or gases. Mention of commercial products in this register does not constitute endorsement or recommendation for use by EPA. The user is also urged to contact the appropriate state regulatory agency to confirm information pertaining to state licensing and approval of the facility. It is hoped that publication of this document at this time will begin to fill an information gap and expedite the generation of more information concerning existing hazardous waste management facilities.

User Instructions

The facility resumes are organized according to location of the facilities. The resumes for each EPA Region are contained behind the appropriate tabular divider. The resumes within each Region are in turn disaggregated according to state.

A matrix of facilities vs. types of waste accepted is presented in the following pages. The waste categories utilized conform to the categories currently used by HWMD staff. The facilities are listed in the matrix by EPA Region and by state within each Region. With knowledge of the types of waste to be handled and the geographic location of the generator, the matrix can be used to identify facilities capable of handling the wastes. The resume of the selected facility can then be easily located.

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TABLE I
Matrix of Wastes Accepted
vs Hazardous Waste
Management Facility

REGION I	Page	Caus. cs	Acids	HM in Solution *	Cyanide	Solvent-type cleaners	Halogenated Organic	Paint, Tank Bottom	Sludges	Sludges with HM *	Arsenic	Oily Water	Off Wastes	Radioactive	Pesticides	Explosives	CITY
Maine																	
Crago Co. Inc.	8	X	X	X			X	X	X			X		X			Gray
Massachusetts																	
Chemical Application Co.	10	X	X			X	X	X				X					Beverly
Safety Projects & Engineering	12	(as determined by EPA Ocean Disposal G/L)															West Quincy
Silresim Chemical Corp.	14			X		X				X		X					Lowell
REGION II																	
New Jersey																	
Astropak Corp.	17							X				X					Edison
Marisol Inc.	19					X	X	X				X					Middlesex
National Converters Inc.	21	X	X			X											Union
Scientific, Inc.	25	X	X	X		X				X		X	X				Scotch Plains
Rollins Environmental Services	23	X	X	X	X	X	X	X	X	X	X	X	X		X	X	Logan Township
New York																	
Chem-Trol Pollution Services	27	X	X	X	X	X	X		X	X	X		X		X		Model City
Chemical Waste Disposal Corporation	30					X											Astoria
Frontier Chemical Waste Incorporated	32	X	X	X	X		X	X	X	X			X				Buffalo
Pollution Abatement Services	34					X		X	X				X				Oswego
Recycling Laboratories	35	X	X	X		X			X	X		X	X				Syracuse

* HM - Heavy Metals

TABLE I
Matrix of Wastes Accepted vs Hazardous Waste Management Facility

REGION III	Page	Caustics	Acids	HM in Solution *	Cyanide	Solvent/Cleaners	Halogenated Organics	Still & Tank Bottoms	Paint Sludges	Sludges with HM *	Arsenic	Oily Water	Oil Wastes	Radioactive	Pesticides	Explosives	CITY
Maryland																	
American Recovery Corp.	37		X	X										X			Baltimore (Curtis Bay)
American Recovery Corp.	39						X					X					Baltimore (Sparrows Point)
Pennsylvania																	
Chem Fix	41			X					X								Pittsburgh
Pottstown Disposal Services	43								X								Pottstown
Sitkin Metal Industries	45			X					X								Lewistown
Virginia																	
Liquid Waste Disposal	47					X		X	X			X					Richmond
REGION IV																	
Kentucky																	
Liquid Waste Disposal, Inc.	48					X		X	X								Louisville
Nuclear Engineering Co. Incorporated	50			X				X		X			X	X	X		Morehead
Petrolite Corp.	52	X	X			X		X	X			X					Calvert City
REGION V																	
Illinois																	
Hyon Waste Treatment Services	54	X	X	X	X	X	X	X	X	X	X		X		X		Chicago

* HM - Heavy Metals

TABLE I
Matrix of Wastes Accepted vs Hazardous Waste Management Facility

	Page	Caustics	Acids	HM in solution *	Cyanide	Solvents/Cleaners	Polychlorinated Organic	Still & Tank Bottom	Paint Sludges	Sludges with HM *	Arsenic	City Water	Off Wastes	Radioactive	Pesticides	Explosives	City
Nuclear Engineering Co.																	
Incorporated	57					X	X	X	X				X	X			Sheffield
Waste Management, Inc.	59	X	X	X		X			X								Chicago Joliet
Indiana																	
American Recovery Corp.	61						X	X				X					East Chicago
Conservation Chemical Company	63	X	X	X	X	X	X	X	X	X							Gary
Seymour Manufacturing	65					X		X						X			Seymour
Michigan																	
Approved Chemical Treatment	67	X	X	X	X	X						X					Grand Rapids
Chem-Met Services	69	X	X	X	X	X	X	X	X	X							Wyandotte
Environmental Waste Control	71	X	X									X					Inkster
Liquid Disposal Co.	73					X			X			X					Utica
Nelson Chemical Co.	75		X	X	X					X		X		X			Detroit
Minnesota																	
Pollution Controls Inc.	77					X			X			X					Shakopee
Ohio																	
Erieway Pollution Control	78		X	X	X	X						X					Cleveland
Koski Construction	81	X	X			X				X							Ashtabula

* HM - Heavy Metals

TABLE I
Matrix of Wastes Accepted vs Hazardous Waste Management Facility

	Page	Caustics	Acids	HM in solution *	Cyanide	Solvents/Cleaners	Halogenated Organics	Still & Tank Bottoms	Paint Sludges	Sludges with HM *	Arsenic	Oily Water	Oil Wastes	Radioactive	Pesticides	Explosives	City
Systems Technology Corp.	82	X	X	X								X	X				Dayton
Wisconsin																	
Rogers Laboratories	84		X	X		X											Milwaukee
Waste Research Recovery	86			X		X							X				Eau Claire
REGION VI																	
Louisiana																	
Rollins Environmental Services	88	X	X	X	X	X	X	X	X	X	X	X	X		X	X	Baton Rouge
Oklahoma																	
U.S. Pollution Control Corporation	90			X	X	X				X		X					Oklahoma City
Texas																	
Bioecology Systems Inc.	92	X	X	X	X	X				X			X				Grand Prairie
Malone Service Co.	94							X				X	X				Texas City
Petrolite Corp.	96			X	X	X						X	X				Corpus Christi

* HM - Heavy Metals

TABLE I
Matrix of Wastes Accepted vs Hazardous Waste Management Facility

	Page	Caustics	Acids	HM in Solution *	Cyanide	Solvents/Cleaners	Halogenated Organics	Still Bottoms	Paint Sludges	Sludges with HM *	Arsenic	Oily Water	Oil Wastes	Radioactive	Pesticides	Explosives	CITY
Texas Ecologists Co.	98	X	X			X		X					X		X		Robstown
REGION VII																	
Missouri																	
Conservation Chemical Company	100	X	X	X	X		X	X	X	X	X						St. Louis
Conservation Chemical Company	102	X	X	X	X		X	X	X	X	X						Kansas City
REGION VIII																	
REGION IX																	
California																	
Casmalia Disposal Site	104			X				X				X		X			Santa Barbara
Chancellor and Ogden	105	X	X	X		X	X	X	X	X	X			X			Wilmington
Environmental Protection Corporation	107					X		X				X	X				Bakersfield Taft
Fresno Co. Dept. Public Works	109													X			Fresno
Hollister Disposal Site	110													X	X		Hollister
Industrial Tank Co.	111			X		X				X			X				Martinez
L.A. Co. Sanitation District	113			X		X	X	X	X	X	X				X		Palos Verdes
Omar Rendering Co.	115	X	X	X		X											Chula Vista
Richmond Sanitary Service	117	X	X	X		X		X	X	X			X		X		Richmond
San Diego Co. Refuse Division	119														X		San Diego
Ventura Co. Sanitation District	120		X	X	X	X	X			X					X		Ventura

* HM - Heavy Metals

TABLE I
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	Page	Caustics	Acids	HM in Solution *	Cyanide	Solvents/Cleaners	Halogenated Organics	Still & Tank Bottoms	Paint Sludges	Sludges with HM *	Arsenic	Oily Water	Oil Wastes	Radioactive	Pesticides	Explosives	CITY
Nevada																	
Nuclear Engineering Co.																	
Incorporated	122					X							X	X			Beatty
REGION X																	
Idaho																	
Wes Con Incorporated	124	X												X			Grandview
Washington																	
Chemical Processors, Inc.	125			X	X	X	X		X	X	X				X		Seattle
Resource Recovery Corp.	127		X			X			X	X							Pasco
Western Processing Co.	129			X		X							X				Kent

* HM - Heavy Metals

REGION I

The Crago Company, Inc.
P.O. Box 409
Gray, Maine 04039
(207) 657-4785 (Mr. Brian Preble)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Preliminary processing/treatment
- B. Service area - Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, and New York.
- C. Date established - 1961
- D. Licenses throughout New England and New York
- E. Organizational structure
  - ° Privately owned corporation
  - ° Subcontracts final processing

II. WASTE STREAMS
- A. Accept - Acids, caustic, halogenated hydrocarbons, heavy metals in solution, oil waste, paint sludge, pesticides, sludge and tank bottoms.
- B. Exclude - Poisonous and toxic materials
- C. Volume - 1 MG/year

III. WASTE HANDLING
- A. Collection/hauling
  - ° Fleet of vacuum trucks
  - ° Flatbed trucks for drums
  - ° 5 tanker transport trucks
- B. Receiving/storage
  - ° Unloading facilities for trucks only
  - ° 3000,000 gals. of closed tank storage capacity
- C. Laboratory analysis
  - ° Performed upon receipt of waste only
  - ° Performed by The Crago Co., Inc.
- D. Treatment - Crago provides only preliminary waste processing
- E. Disposal - Available

IV. ECONOMICS
- A. User charges - Negotiable
- B. Costs - Negotiable
- C. Resource recovery revenues - Negotiable
- D. Percent capacity - 1 MG/per year
- E. Expansion potential - Unlimited

V. COMMENTS - The non-saleable materials or waste are transferred to processors in New Jersey because there are no facilities in New England that are capable of processing these materials. Crago's operation is actually a hazardous waste disposal operation.

VI. SOURCE -

Personal communication. Mr. Preble, The Crago Co., Inc., with Dan Ward, Office of Solid Waste Management Programs, July 3, 1974.

Personal communication. Mr. Brian L. Preble, The Crago, Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 14, 1974.

Chemical Application Co.
116 Water St.
Beverly, Massachusetts 01915
(617) 927-1680 (Mr. Joseph)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Preliminary processing/treatment
   B. Service area - Massachusetts and Rhode Island.
   C. Date established - 1959
   D. Licensed by the city of Beverly for a discharge to the municipal wastewater collection system.
   E. Organizational structure
      ° Privately owned corporation
      ° Subcontracts final processing

II. WASTE STREAMS
   A. Accept - Acids, caustics, halogenated hydrocarbons, oil wastes, solvent/cleaners, still and tank bottoms.
   B. Exclude - Not obtained
   C. Volume - Not obtained

III. WASTE HANDLING
   A. Collection/hauling-11 tanker transport trucks
   B. Receiving/storage
      ° Unloading facilities for trucks only
      ° 325,000 gal. of closed tank storage capacity
      ° One 50,000 gal. lined tank for acids and caustics
   C. Laboratory analysis - None
   D. Treatment
      ° System 1: Acid and caustic are combined in the lined tank. When a near-neutral pH is obtained, the liquor is discharged to the municipal wastewater collection system.
      ° System 2: Oil waste, still and tank bottoms, halogenated hydrocarbons, and solvents are pumped into storage tanks. Blending is practiced if a more saleable material can be produced or the waste processing cost can be reduced. When sufficient quantities for shipping have accumulated, the tank contents are pumped into the transport trucks. The oil waste and still and tank bottoms are accepted by Northeastern Maintenance Services. The solvents and halogenated hydrocarbons are accepted by Lewis Chemical Co. Both firms reclaim as much of the material as is economically feasible and incinerate the remainder.
   E. Disposal - Not applicable

IV. ECONOMICS
   A. User charges - Not obtained
   B. Costs - Not obtained
   C. Resource recovery revenues - Not obtained

D. Percent capacity - Not applicable
E. Expansion potential - Not obtained

V. COMMENTS - This facility is similar to a hazardous waste transfer station.

VI. SOURCE -

Personal communication. Mr. Joseph, Chemical Application Co., with Dan Ward, Office of Solid Waste Management Programs, July 3, 1974.

Safety Projects and Engineering, Inc.
3 Malden St.
West Quincy, Massachusetts
(617) 471-1327 (Mr. Vincent Varone)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - Maine, Vermont, New Hampshire, Massachusetts, Conneticut, Rhode Island.
   C. Date established - 1964
   D. Licensed by - USEPA, Region I for ocean disposal.
   E. Organizational structure - Privately owned corporation.

II. WASTE STREAMS
   A. Accept - Mr. Varone would say only that Safety handles all the types of waste permitted by EPA's Ocean Dumping Regulations. He would not list the specific wastes handled by Safety. Development of a list from the Ocean Disposal Regulations is impossible because most of the wastes are acceptable only when certain ancillary conditions are met. Determination of the satisfaction of the ancillary conditions requires data be made available by Mr. Varone.
   B. Exclude - Same as above
   C. Volume - 1,700 gal./month

III. WASTE HANDLING
   A. Collection/hauling
      ° 1 truck
      ° Drummed waste only
   B. Receiving/storage
      ° All waste in some type of container upon receipt.
      ° Stored in an old incinerator building.
   C. Laboratory analysis - Mr. Varone claims that no analysis of the waste is performed.
   D. Treatment - All waste not received in 55 gal. drums is transferred to such containers. All the drums except those containing sodium are then encased in concrete.
   E. Disposal
      ° Ocean dumping 14 miles off Boston Lighthouse
      ° Encapsulated drums simply dumped overboard.
      ° Drums containing sodium are floated away from the boat and sunk by rifle fire.

IV. ECONOMICS
   A. User charges -
      ° $85 per drum of sodium
      ° Prices for other wastes vary with the type of waste.
   B. Costs - Not obtained
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Not applicable

E. Expansion potential - Not obtained

V. COMMENTS - A potential source of the types of waste handled by Safety is EPA, Region I.

VI. SOURCE -
Personal communication. Mr. Varone, Safety Projects and Engineering, Inc., with Dan Ward, Office of Solid Waste Management Programs, July 2, 1974.

Silresim Chemical Corporation
86 Tanner Street
Lowell, Massachusetts 01852

(617) 459-7342

J. Miserlis - President
H. N. Ypsilantis - Plant Manager
C. Johnson - Sales Manager

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal-incineration
      ° Custom Refining
      ° Solvent Recovery
      ° Laboratory Analysis Consulting
   B. Service Area - New England, New Jersey, New York
   C. Date established - 1970
   D. Massachusetts Hazardous Waste Collection License; Division Water Pollution Control
   E. Organizational structure
      ° Privately owned corporation
      ° subcontracts landfill disposal

II. WASTE STREAMS
   A. Accepted - Oil waste, solvents, lab chemical wastes, sludges containing heavy metals, plating wastes.
   B. Exclude - Explosives, radioactive, biological.
   C. Volume - 250,000 gal./month processed.

III. WASTE HANDLING
   A. Collection/hauling
      ° Fleet of trucks
      ° Vehicles for handling both bulk and drummed waste
   B. Receiving/storage
      ° unloading facilities for trucks and rail cars:
      ° 400,000 gal. of closed tank storage capacity
      ° 130,000 gal. of storage capacity in stainless steel tanks
   C. Laboratory Analysis
      ° Perform prior to contract commitment and upon receipt of wastes
      ° Performed by Silresim in on-site lab capable of the latest state-of-the-art analyses including G. C., I. R., U. V., A. A., and many other special tests.
   D. Treatment
      ° Have four separate recovery systems that can handle wastes containing the following organic chemicals; Acetone, Methanol. MEK, MIBK, DMF, DMSO, THF, IPA, Ethyl Acetate, Butyl Acetate, Styrene Monomer, Acrylonitrile, Ethyl Benzene, Diethyl Benzene,

Benzene, Toluene, Xylene, Mineral Spirits, Mineral Oil, Glycerine either by Distillation (continuous or batch; vacuum or pressure), or Evaporation (continuous or batch; vacuum or pressure). In addition, there are four other systems which can handle organic halocarbons such as Trichlorethylene, 1,1,1-Trichlorethane, Methylene Chloride, Perchlorethylene, Dichloroethylene (1,1), Ethylene Dichloride, Monochlorobenzene, Trichlorobenzene, Freon TF, Freon TE, and Freon MC by Distillation (continuous or batch), or Evaporation, (continuous or batch).

- The systems reclaim solvents which meet customer specifications or are salable. The still bottoms are subject to additional processing which converts the wastes into incinerable liquids or solid and sludgy material which can be landfilled. Silresim feels that this facility encompasses an advance of the state-of-the-art particularly with regard to bottoms processing.
- Also handle many waste aqueous streams containing small quantities (less than 5%) of inorganic salts which are neutralized by pH adjustments and filtered. The solids are sent to landfill and suitable aqueous filtrates are sent to the sewer.
- Suitable concentrated inorganic waste aqueous streams containing recoverable metal salts are treated by ion exchange methods to remove valuable metals and the reagents which remain are suitable for reuse are recycled.
- Concentrated inorganic wastes aqueous streams containing non-recoverable metal salts are treated by oxidative or reductive reagents, concentrated further, and after pH adjustments are filtered and the solids are sent to landfill while the aqueous streams are sent to the sewer.
- Oil wastes are stored (maintains 50,000 gal. inventory) and used as fuel to generate steam.
- Unreusable oil wastes and other wastes that cannot be recovered are stored and eventually transported to another treatment facility that can handle these wastes.
- Silresim will set up a process or adapt a process for a customer who can gurantee a substantial solvent waste stream for a sustained period (min. one year).

E. Disposal - to landfill after treatment

IV. ECONOMICS

A. User charges - governed by specific waste stream
B. Cost - governed by specific waste
C. Resource Recovery Revenues - not obtained

V. COMMENTS - none

VI. SOURCE -

Personal Communication, Chris Johnson, Silresim Chemical Corporation, to Daniel Moon, EPA Region I, November 7, 1974.

REGION II

Astro Pak Corp.
P.O. Box 416
Edison, New Jersey 08817
(201) 549-1788 (Mr. Greenwood)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
   B. Service area - Maryland to Massachusetts and Eastern Pennsylvania to Atlantic Coast (24 hr. emergency service)
   C. Date established - March 1, 1959
   D. Licensed by Public Utilities Commission
   E. Organizational structure - Edison plant is an element in a world-wide corporation (Astro Pak) which has its main offices in Downey, California, (213) 773-1029.

II. WASTE STREAMS
   A. Accept - Predominantly petro-base wastes including still and tank bottoms, and organic sludge - also chemical waste and chemical by-products waste.
   B. Exclude - Any product not related to chemicals
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Trucks and tankers including glass lined, stainless steel, rubber lined and black iron lined trucks, vacuum tanks and portable pumps for spill recovery are also available.
   B. Receiving/storage - Storage tanks lined as above. Storage volume unknown. Several tanks remain empty in order to handle emergency situations. Receive bulk and/or drummed wastes by truck.
   C. Laboratory facilities - Tests conducted on samples and compared to samples taken upon delivery.
   D. Treatment - Treatment limited to neutralization of acids and caustics on-site. All wastes received are forwarded to state approved landfill. (Landfill not operated by Astro Pak).

IV. ECONOMICS
   A. User charges - Based on waste analysis; charges depend on hauling distance.
   B. Costs - Operating and capital costs unknown.
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - 90%
   E. Expansion potential - Fast growing business, with expansion very likely.

V. COMMENTS - Non-hazardous materials make up a substantial portion of firm's business. Such wastes are subcontracted to a licensed ocean disposal firm.

VI. SOURCE -

Personal Communication. Mr. Greenwood, Astro Pak Corporation, with Don Farb, Office of Solid Waste Management Programs, May 31, 1974.

Personal Communication. Mr. Greenwood, Astro Pak Corporation, to Don Farb, Office of Solid Waste Management Programs, November 22, 1974.

Marisol, Inc.
125 Factory Lane
Middlesex, New Jersey 08846
(201) 469-5100 (Mr. H. P. Nerger)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment for recovery
   B. Service area - Mainly Northeast U.S.A. - Some Midwest and Southeast accounts
   C. Date established - 1962
   D. Approved and licensed by the Public Utilities Commission
   E. Organizational structure - Wholly owned company. 6 days/week operation; spill handling service available.

II. WASTE STREAMS
   A. Accept - Liquid organic chemicals, cleaners, halogenated hydrocarbons, and oil wastes for reclamation.
   B. Exclude - Inorganics non-pumpable sludges or solids, biological and radioactive wastes.
   C. Volume - 500,000 gal./month

III. WASTE HANDLING
   A. Collection/hauling - 4 trucks, 8 bulk tanker trailers, 2 flat bed trailers.
   B. Receiving/storage - Bulk and drum, by truck; 1,000,000 gal. storage capacity (bulk and drums).
   C. Laboratory analysis - Facilities available to analyze samples, shipments, and recovered solvent quality.
   D. Treatment - Distillation, settling and necessary chemical treatments. Reclaimed solvents and/or petro-chemicals marketed or returned to origin for re-use. Residues and still bottoms (drum or bulk) forwarded to state approved landfill for disposal.
   E. Disposal - Not applicable.

IV. ECONOMICS
   A. User charges - Based on value of recoverable products. Firm may charge fee for some wastes processing, while other wastes are bought from generator.
   B. Costs - unknown
   C. Resource recovery revenues - Annual sales $1,750,000
   D. Percent capacity - 50%
   E. Expansion potential - Currently unknown; plan to expand into service areas that have high potential.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Robert Czeropski, Marisol, Inc., with Don Farb, Office of Solid Waste Management Programs, June 27, 1974.

Personal communication. Mr. Robert Czeropski, Marisol, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 11, 1974.

National Converters, Inc.
457 Chestnut
Union, New Jersey
(201) 964-1550 (Mr. Norman Cohen)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling - Special vacuum equipment available
  - ° Processing/treatment
- B. Service area - New Jersey and surrounding industrial concerns in New York, Pennsylvania, Maryland, Delaware, Virginia, West Virginia, and New England.
- C. Service started in the early '50's.
- D. Licensed by the State of New Jersey.
- E. Organizational structure - Firm is an element of Perk Chemical Inc., 217 South First St., Elizabeth, New Jersey, 07206, where principal processing facilities are located. (201) 355-5800.

II. WASTE STREAMS
- A. Accept - All solvents, acid, alkalis, and other chemicals.
- B. Exclude - High sodium and other very reactive wastes. Other wastes excluded depending on analysis. Service emphasizes solvents.
- C. Volume - Approximately 75,000 gal./week.

II. WASTE HANDLING
- A. Collection/handling - Tractor and trailer equipment available through parent affiliate. Tankers included rubber lined, stainless steel, lined high capacity vacuum trailers, and carbon steel trailers.
- B. Receiving/storage - Wastes received by truck or rail in bulk or drums. 60,000 gal. storage capacity.
- C. Laboratory analysis - Chemical engineer on staff with sample analysis and spot check analyses on wastes.
- D. Treatment - Distillation with neutralization
  - ° Organic solvents are reclaimed by distillation.
  - ° Recovered solvents returned to source or sold to interested parties.
  - ° Waste by-products neutralized, drummed and forwarded to licensed landfills (not company operated).
- E. Disposal - As indicated above - wastes forwarded to landfills or reprocessed for reuse.

IV. ECONOMICS
- A. User charges - Charges vary depending on concentration of waste. Quotations furnished based on sample analysis.
- B. Costs - Specific outlays for waste handling unknown - equipment especially designed for handling of spent chemicals. Estimated cost for small distillation operation - $100,000 (without collection/hauling equipment and land costs).
- C. Resource recovery revenues - Unknown

D. Percent capacity - Currently operating near capacity.
E. Expansion potential - Plan to add distillation columns in the near future.

V. COMMENTS - Waste solvent handling and recovery represents a rapidly growing portion of firm's business, equalling in importance solvent distribution.

VI. SOURCE -

Personal communication. Mr. Cohen, National Converters, Inc., with Don Farb, Office of Solid Waste Management Programs, July 12, 1974.

Personal communication. Mr. Cohen, National Converters, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 13, 1974.

Rollins Environmental Services
(Main Offices) One Rollins Plaza
Wilmington, Delaware 19803

Plant Locations:
Baton Rouge, LA
Bridgeport, NJ
Houston, TX

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal
- B. Service area - Nationwide
- C. Date established - Construction completed in New Jersey in 1970; in Louisiana in 1971; in Houston in 1971.
- D. Licensed by - Respective state health and environmental agencies.
- E. Organizational structure - Rollins Environmental Services is a part of Rollins International, a diversified corporation with major interests in highway transportation (Matlack Trucking).

II. WASTE STREAMS
- A. Accept - Generally all industrial chemical wastes and limited explosives or poisons, including: acids, caustics, chlorinated and non-chlorinated organics, plating and etchant solutions, paint sludges, pesticides, cyanide, scrubber effluents, etc.
- B. Exclude - Only known exception is radioactive wastes.
- C. Volume - 250,000 gallons/day at capacity.

III. WASTE HANDLING
- A. Collection/hauling - Service provided by RES and Matlack Trucking subsidiary. Complete line of bulk and drum handling equipment.
- B. Receiving/storage - Facilities available for receiving and storing bulk or drummed wastes, capacity - up to 500,000 gallons.
- C. Laboratory analysis - Sample analysis and repeated analysis upon receipt of shipment.
- D. Treatment
  1. Chemical degradation
     Neutralization of acids and alkalies -- insoluble residues are landfilled, certain soluble salts receive ocean disposal.
     Oxidation or reduction of certain organic compounds and metals -- non-toxic residues (landfilled) or recovered material, (e.g. copper).
     Precipitation of dissolved and colloidal materials.
  2. Incineration
     Rotary kiln (1500° - 2000°F) primarily liquids
     Afterburner (2500°F)
     17,000 to 20,000 gal./day (24 hr. operation)
     Double chambered quench - scrub section up to 800 gal./min. alkali spray.
     Sludges landfilled.

3. Biological treatment
   Flocculation and sludge separation.
   Solids are landfilled.
   Supernatant - equalization, -- trickling filter -- equalization, -- oxidation -- stabilization -- discharge to creek.

E. Disposal (as indicated above)
   Stabilized effluents discharged to aquatic environment.
   Insoluble salts and inert sludges are landfilled.
   Certain soluble salts and brine solution receive ocean disposal.

IV. ECONOMICS
   A. User charges
      ° Transportation costs - $0.60 cwt. per 100 miles.
      ° Disposal charges - 1.0 to 3.0¢ per pound.
   B. Costs - Construction costs for 3 plants (Bridgeport, Baton Rouge and Houston) - 22 million.
   C. Resource recovery revenues - Copper recovery, revenues unknown.
   D. Percent capacity - Unknown
   E. Expansion potential - Investigating Cleveland, Chicago, and Detroit areas for additional sites.

V. COMMENTS - Houston, Baton Rouge, and Logan Township (New Jersey) facilities are similar in design and operating characteristics.

VI. SOURCE -

Personal communication. Mr. A. J. D'Lauro, Jr., Rollins International, Inc., to Mr. Sam Morekas, Office of Solid Waste Management Programs, November 8, 1974.

Scientific, Inc.
Edison and South Jersey
(Central Office) 17 East Second St.
Scotch Plains, New Jersey 07076
(201) 322-6767 (Mr. Jim Stroin)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Disposal
- B. Service area - New Jersey, New York, Pennsylvania
- C. Date established - 1965
- D. Licensed by the State of New Jersey for landfill operations
- E. Organizational structure - Publicly owned corporation

II. WASTE STREAMS
- A. Accept - Solvents/cleaners, oil, waste waters, high BOD and COD streams
- B. Exclude - Explosives, nuclear waste, pesticides and fungicide material
- C. Volume - 50,000 gal./day

III. WASTE HANDLING
- A. Collection/hauling - Trucks for handling liquid waste in both bulk and drums
- B. Receiving/storage - None
- C. Laboratory analysis - By Scientific, Inc. upon receipt of waste
- D. Treatment - Not applicable
- E. Disposal
  - ° Sanitary landfill utilized at each location
  - ° Liquids incorporated into municipal solid waste at the working face
  - ° Incorporation ratio - 1 "load" liquid waste to 20 "loads" of municipal solid waste
  - ° Clay liner in each landfill
  - ° Leachate monitoring wells
  - ° Capacity for 20 years at Edison, and 30 years at South Jersey at present operating levels.

IV. ECONOMICS
- A. User charges - Not obtained
- B. Costs - Not obtained
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - Not applicable
- E. Expansion potential
  - ° In the engineering design phase of a hazardous waste processing facility
  - ° Objective of facility - resource recovery
  - ° Location - Scientific's Edison site
  - ° Treatment systems for oils, solvents, copper, chromium, and cyanide.

- Construction expected to start in spring of 1975.

V. COMMENTS - Scientific, Inc. does join ventures with major corporations, installs and operates collection and recovery equipment on the property of customers.

VI. SOURCE -

Personal communication. Mr. James Stroin, Scientific, Inc., with Dan Ward, Office of Solid Waste Management Programs, June 27, 1974.

Personal communication. Mr. James Stroin, Scientific, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, December 5, 1974.

Chem-Trol Pollution Services, Inc.
Subsidiary of SCA Services, Inc.
P.O. Box 200, 1550 Balmer Rd.
Model City, NY 14107
(716) 754-8231 (Edward R. Shuster)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Recycling/reclamation
  - ° Processing/treatment
  - ° Disposal
  - ° Chemical cleaning/water jetting
- B. Service area - U.S. and Canada
  Chiefly 30 eastern states, Ontario, Quebec
- C. Date established - 1969
- D. Licensed by New York State
  Supplemental collection/hauling permits throughout areas served.
- E. Organizational structure - Wholly owned subsidiary of SCA Services, Inc. of Boston (as of October 1973). Originally located at Blasdell, NY. Relocated to Model City, NY in 1972 to accommodate rapid growth. Operates Regional Sales & Technical Service Office, Laboratory and Transportation Terminal in New Jersey. SCA/Chem-Trol Sales Offices throughout U.S. and Ontario.

II. WASTE STREAMS
- A. Accept - Most types of chemical-related wastes including solvents/cleaners, halogenated hydrocarbons, paint & coating sludges, oils and oily waste, toxic acids, alkalis, plating/etching wastes, cyanides, heavy metal solutions & residues, pesticides/PCB's,carcinogens, sludges and solids, arsenic and mercury wastes.
- B. Exclude - Radioactive wastes, shock-sensitive explosives
- C. Volume - Capacity in excess of 100 million gallons annually at Model City facility.

III. WASTE HANDLING
- A. Collection/hauling - 30 tractors, 70 assorted bulk tankers, 16 closed van trailers, 29 vacuum trucks available. Two mobile water-jetting and two chemical cleaning units in service.
- B. Receiving/storage - 24 hour operation
  - ° Receive by truck, common carrier, and rail in bulk or drum form.
  - ° 2.0 million gallon tank storage.
  - ° 6-7 million gallon lined lagoon storage.
  - ° 50,000 drum storage area.
- C. Laboratory analysis
  - ° Modern well-equipped facility, advanced instrumentation.
  - ° 11 B.S. -M.S. Chemists, 1 PhD, 5 Technicians
  - ° 6 B.S. -M.S. Engineers (Chemical, Environmental)
  - ° Perform R & D, Quality Control, Process Control, Waste Product evaluation

° Over 14,000 waste materials analyzed/evaluated to date.
° Pilot plant facility.

D. Treatment - Depending on composition, volume, and economics, wastes are processed for resource recovery with disposal of unrecoverables.
   1. Chemical detoxification
      ° Firm employs a patented neutralization process for acids and alkalies.
      ° Company has developed and uses proprietary physical/chemical detoxification technology.
   2. Chemical Fixation - Stabilization and fixation process using proprietary chemicals with wastes in a reactor vessel.
   3. Recovery processes employ distillation, centrifuging, settling, decanting and/or blending techniques to recover saleable materials (e.g., solvents, fuels, oil and inorganics).
   4. Incineration
      ° Liquid injection thermal oxidizer (@ 2700°F or greater)
      ° Alkaline gas scrubber removes air contaminants and cools effluent gas to 180°F.
      ° Operates 24 hrs./day for 60 - 120 days then shut down for maintenance.

E. Disposal - Controlled Landfill
   ° Reinforced membrane-lined clay cells that receive solids, sludges, and chemically fixed wastes.
   ° Internal sump within each cell collects leachate for treatment.
   ° 3 - dimensional inventories of buried wastes are maintained for possible recovery at later date.

F. Technical Services - Assistance offered in preparation, identification, and packaging of wastes for safe shipment, storage, and processing.

IV. ECONOMICS

A. User costs vary greatly in accordance with recovery values and processing requirements.
   ° Transportation charges stated separately.
   ° Company purchases some recoverable wastes.
   ° Many bulk liquids disposed in 8-20¢/gal. range.
   ° Hazardous/toxic wastes more expensive.
   ° Packaged laboratory wastes about $80/drum.
   ° Accommodation made for small and large volumes.

B. Costs - Custom facilities were constructed by modifying available equipment. Company estimates $15 - 20 million capital costs to duplicate in 1974.

C. Resource recovery revenues - Constitutes over 30% of current business. Percentage of reclamation expected to be double within 5 years.

D. Percent capacity - Currently below 50% of available capacity, growing rapidly.

E. Expansion potential - Similar facility scheduled to be on stream in 1-2 years in New Jersey. Actively considering sites and markets in several industrialized states.

V. COMMENTS - Firm operates total waste handing, disposal, and resource recovery facility for chemical wastes.

VI. SOURCE -

Personal communication. Mr. Edward R. Shuster, Chem-trol Pollution Services, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 15, 1974.

Chemical Waste Disposal Corporation
42-14 19th Avenue
Astoria, New York 11105
(212) 274-3339 (Mr. Levy)

I. BACKGROUND
   A. Services provided
      ° Separation/collection/transporting
      ° Processing/treatment
   B. Service area - Tristate; NY, NJ, CT Metropolitan area
      not limited
   C. Date established - 1964
   D. Licensed by the State of New York; Registered with the State of Connecticut
   E. Organizational structure - Professionally staffed (Chemical & Engineering oriented). Service, distillation, & recycling of Chlorinated solvents, and disposal/treatment of waste chemicals and chemical materials. Dual Companies: Chemical Waste Disposal Corp., Chemical & Solvent Distillers Co., Inc.

II. WASTE STREAMS
   A. Accepted - Recovery/distillation of Chlorinated solvents, and related solvents
      Separation & disposal of laboratory and by-product waste
   B. Excluded - Radioactive waste
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/transportation - Provide all laboratories and by-product waste generators with appropriate separation, collection, and containerization or waste of obsolete chemicals. Packed in 18 guage, 30 or 55 gallon open-head steel drums, state approved. Provide all services for collection of recoverable solvents, treatment and disposal of selected acids and caustics.
      Equipment - Stills from 500 - 2,000 gallon capacity. Treatment tanks, glass reactors, trucks.
   B. Receiving/storage - Total 25,000 gallon bulk storage, facility for 2,000 drums storage/processing
   C. Laboratory analysis - Quality control lab to evaluate all samples of materials for treatment or recovery
   D. Treatment
      ° Chemical and Solvent Distillers reclaims industrial solvents. Residues and waste containerized and forwarded for disposal in approved landfill. Selected waste forwarded for further recovery or treatment.
   E. Disposal - Not applicable

IV. ECONOMICS
- A. User charges - Furnished upon request, vary with nature of waste and/or recovery value.
- B. Costs - Unknown
- C. Resource recovery revenues - Unknown
- D. Percent capacity - 80%, single shift basis
- E. Expansion potential - Unlimited

V. COMMENTS - Specialized operations

VI. SOURCE -

Personal communication. Mr. Levy, Chemical Waste Disposal Corp., with Don Farb, Office of Solid Waste Management Programs, June 21, 1974.

Personal communication. Mr. Morris Levy, Chemical Waste Disposal Corp., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 14, 1974.

Frontier Chemical Waste Process, Inc.
4626 Royal Ave.
Niagara Falls, NY 14303
(716) 285-8200 (Dr. S.K. Lee, Mr. George Lodick)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling, technical assistance
      ° Processing, treatment, reclamation
      ° Consulting, research, laboratory testing
   B. Service area - Nationwide
   C. Date established - 1958
   D. Licensed by the State of New York
   E. Organizational structure - Wholly owned private corporation. Not affiliated with other waste management firms. Staff includes Ph.D. Chemists, Chemical Engineers, and Physics and Transportation experts.
   F. Facilities - Operate staging and processing separately.

II. WASTE STREAMS
   A. Accept - Industrial by-products and wastes of both organic and inorganic composition and off spec. materials. Electroplating; metal-finishing waste of heavy metals (Cr, Cu, Ni, Zn, Cd, Hg, Sn, Sb, Pb, As, etc.), acids, bases,salts, cyanide, cyanate, carcinogenics, compounds, oil, paints, inks, heterocyclics and halogenated compounds.
   B. Exclude - Non-decontaminated radioactive waste materials.
   C. Volume - Not obtained

III. WASTE HANDLING
   A. Collection/hauling - Fleet of trucking equipment, rail facilities.
   B. Receiving/storage - Receive truck load shipments (drum or bulk), rail (bulk). Storage capacity - 3,000,000 gallons.
   C. Laboratory analysis - Complete environmental laboratory facilities staffed with Ph.D. Chemists and Chemical Engineers. Monitoring and close quality control exercised at all points. Safety and special handling and transportation of material is constantly controlled.
   D. Treatment - Chemical - Utilization of in-house technologies coupled with state-of-the-art electrochemical, catalytic and pyrolytic means of oxidation, reduction and coupling reactions to achieve detoxified products for ultimate disposition.
      ° Actively engaged in R & D of economically feasible methods of treatment.

- ° Developed number of proprietory methods for detoxifying heavy metals.
- ° Utilizes closely monitored environmental landfills.
- ° Specialized in detoxification of industrial hazardous chemicals.
- ° Actively involved in high temperature pyrolysis for energy recovery systems.

IV. ECONOMICS

A. User charges - Costs vary depending upon waste composition and ultimate disposition.
B. Costs - In line with other industries for state-of-the-art treatment.
C. Resource recovery revenues - Moderate (R & D Active).
D. Percent capacity - Presently operate full capacities.
E. Expansion potential - Constant expansion of processing capabilities.

V. COMMENTS - Will consider any waste stream for recovery or destruction, process development, licensing of in-house technology, consulting research and analytical services offered to customer. Economic feasibility of doing recovery or destruction work will determine whether or not waste is accepted. Firm also provides chemical clearing house service.

VI. SOURCE -

Personal communication. Mr. Lodick and Dr. Lee, Frontier Chemical Waste Process, Inc., with Don Farb, Office of Solid Waste Management Programs, June 19 and June 20, 1974.

Personal communication. Dr. Lee, Frontier Chemical Waste Process, Inc. to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 13, 1974.

Pollution Abatement Services
P.O. Box 4065
Oswego, New York
(315) 343-3356 (Mr. Pierce or Mr. Miller)

I. BACKGROUND
- A. Services provided - Processing/treatment
- B. Service area - New York, New England, Pennsylvania, and New Jersey.
- C. Date established - 1970
- D. Licensed by the State of New York for incinerator emission.
- E. Organizational structure - Private corporation

II. WASTE STREAMS
- A. Accept - Oil wastes, paint sludges, solvents/cleaners, still and tank bottoms, and generally any organic or aqueous liquid.
- B. Exclude - Organic and inorganic solids.
- C. Volume - 7.0 MG/year.

III. WASTE HANDLING
- A. Collection/hauling - Transportation arranged by P.A.S. Inc.
- B. Receiving/storage
  - ° Unloading facilities for trucks (tank and flatbed with drums).
  - ° 60,000 gal. of closed tank storage capacity.
- C. Laboratory analysis
  - ° Analysis performed on each waste prior to contract commitment and again upon receipt.
  - ° Analysis performed by Pollution Abatement Services
- D. Treatment
  - ° Combustion in vortex liquid waste incinerator.
  - ° 1500 gal./hr. capacity
  - ° Operating level equivalent to approximately 1000 gal./hr.
  - ° High energy Venturi scrubbing system
  - ° No residue for disposal according to Pollution Abatement Services.
- E. Disposal - Not applicable

IV. ECONOMICS
- A. User charges
  - ° 6.5 - 15¢/gal. in bulk
  - ° $7 - 14/drum
- B. Costs - Not obtained
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - 50%
- E. Expansion potential - 1 MG of additional storage capacity planned

V. COMMENTS - None

VI. SOURCE -
Personal communication. Mr. W. Pierce, Pollution Abatement Services, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 25, 1974.

Recycling Laboratories
112 Harrison Place
Syracuse, New York 13202
(315) 422-4311 (Mr. Richard Greene)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Treatment/processing
      ° Disposal
   B. Service area - Upstate New York and Boston
   C. Date established - Unknown
   D. Licensed by the State of New York
   E. Organizational structure - Company founded by Richard Greene and Robert Andreas. Subsidiary plant available in Boston. Currently operating 24 hrs./day. Accept materials for destruction, reclamation and/or return.

II. WASTE STREAMS
   A. Accept - Industrial solvents (chlorinated and non-chlorinated), caustics and acids with heavy metals, oil, vinyl, polyesters, and pigment sludges. (Under contract to handle General Electric's wastes).
   B. Exclude - Will vary, decision based on laboratory analysis.
   C. Volume - Unkrown

III. WASTE HANDLING
   A. Collection/hauling - Service available
   B. Receiving/storage - Handle mostly drummed wastes (bulk wastes accepted at Syracuse). Job lot or contract arrangements.
   C. Laboratory analysis - Sample analysis and quality control service.
   D. Treatment - Distillation
      ° 250 gal./hr. chlorinated still
      ° 150 gal./hr. non-chlorinated still
      ° Atmospheric still available on subcontract arrangements.
      ° Investigating vacuum still to recover mercury
      ° Recover solvents for resale, other wastes sold as is.
      ° Wastes requiring destruction are forwarded to Pollution Abatement Services, Oswego, New York for incineration.
   E. Disposal - as indicated above (subcontracted to incinerator)

IV. ECONOMICS
   A. User charges - Quotations furnished upon analysis.
   B. Costs - Unknown
   C. Resource recovery revenues - Unknown
   D. Percent capacity - Close to capacity. Development schedule two years ahead of schedule. (24 hr. operation)
   E. Expansion potential - Good, company is interested in developing

landfill liner technology and metal recovery capability.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Greene, Recycling Laboratories, with Mr. Don Farb, Office of Solid Waste Management Programs, May 20, 1974.

REGION III

American Recovery Corporation (Curtis Bay Facility)
2001 Benhill Avenue
Baltimore, Maryland
(301) 355-0623 (Mr. John F. Bryan)

I. BACKGROUND
   A. Services provided
      ° Processing/treatment, including sorting, packing, pick-up, and disposal of laboratory chemicals
   B. Service area - Maryland, Virginia, Pennsylvania
   C. Date established - 1971
   D. Organizational structure
      ° Subsidiary of Union Corp. of Verona, Pennsylvania, a publicly owned corporation
      ° Subcontracts bulk hauling.
      ° Subcontracts landfill disposal.

II. WASTE STREAMS
   A. Accept - Acids, heavy metals in solution, mixed laboratory wastes and chemicals.
   B. Exclude - Not obtained
   C. Volume - 100,000 gal./week.

III. WASTE HANDLING
   A. Collection/hauling - 1 truck for handling drummed waste only.
   B. Receiving/storage
      ° Unloading facilities for trucks only.
      ° 70,000 gal. of closed tank storage.
   C. Laboratory analysis
      ° Analysis prior to contract commitment
      ° Generator's analysis accepted.
   D. Treatment
      ° System 1: Lime slurry is added to the solutions containing heavy metals. Mixing and flocculation induce the formation of metal hydroxide precipitates, followed by sulfide treatment. The slurry is then pumped to lagoons where sedimentation of the solids occurs. The solids are periodically dredged from the lagoons and placed in a landfill. Some liquid evaporates. The remainder of the treated liquid is disposed of according to state regulations.
      ° System 2: Mixed laboratory wastes and acids without heavy metals are treated with the above. Certain other chemicals that cannot be identified or that cannot be treated in a conventional manner are encapsulated in concrete. Chemicals of value are salvaged and recycled.
   E. Disposal - Not applicable

IV. ECONOMICS
- A. User charges - not obtained
- B. Costs - not obtained
- C. Resource recovery revenues - When possible
- D. Percent capacity - 50%
- E. Expansion potential
  - ° The company plans expansion in the form of portable processing plants. (See American Recovery Corp.; East Chicago, Indiana).
  - ° Installation of a solvent and a heavy metals recovery plant.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. John Bryan, American Recovery Corp. (Curtis Bay Facility), with Dan Ward, Office of Solid Waste Management Programs, June 6, 1974.

Personal Communication. Mr. Robert A. Taylor, American Recovery Corp. , to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 26, 1974.

American Recovery Corporation (Sparrows Point)
901 Recovery Road
Baltimore, MD 21219
(301) 388-0830 (Mr. Taylor)

I. BACKGROUND
   A. Services provided - Processing/treatment
   B. Service area - Maryland, Pennsylvania, Virginia, Washington, D.C.
   C. Date established - 1971
   D. Licenses required
   E. Organizational structure
      ° Subsidiary of Union Corp. of Verona, Pennsylvania, a publicly owned corporation.
      ° Subcontracts collection/hauling.
      ° Subcontracts landfill disposal.

II. WASTE STREAMS
   A. Accept - Oil waste (particularly API Separator Sludge), still and tank bottoms, and heavy organics not included in the above categories.
   B. Exclude - Inorganics and solvents.
   C. Volume - 30,000 gal./day.

III. WASTE HANDLING
   A. Collection/hauling - not applicable
   B. Receiving/storage
      ° Unloading facilities for trucks and barges.
      ° Waste also received by pipeline.
      ° 250,000 gal. of closed tank storage capacity.
   C. Laboratory analysis
      ° Performed both prior to contract commitment and upon receipt of waste.
      ° Performed by American's Curtis Bay Facility in Baltimore.
   D. Treatment - A proprietary process is used to break the oil-water emulsions and subsequently separate water and solids from the oil. The oil is harvested and sold to heavy industries. The water is discharged along with Bethlehem Steel's effluent, and the solids are collected and sent to landfill.
   E. Disposal - not applicable

IV. ECONOMICS
   A. User charges - not obtained
   B. Costs - not obtained
   C. Resource recovery revenues - 15 - 20¢/gal.
   D. Percent capacity - not obtained
   E. Expansion potential - Expansion of this facility is not planned. However, the company is planning to build portable plants using

the same proprietary process for the reclamation of oils. American feels that portable facilities are necessary because no other areas in the country have adequate quantities of heavy organic wastes to fully utilize a facility.

V. COMMENTS - This facility is located on Bethlehem Steel Company's site. American handles all of Bethlehem's oil waste and oil waste from other generators.

VI. SOURCE -

Personal communication. Mr. Taylor, American Recovery Corp. (Sparrows Point), with Dan Ward, Office of Solid Waste Management Programs, July 1, 1974.

Personal communication. Mr. Robert A. Taylor, American Recovery Corp., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 26, 1974.

Chemfix, Inc.
505 McNeilly Rd.
Pittsburgh, Pennsylvania 15226
(412) 343-8611 (Mr. Ralph Wisniewski)

I. BACKGROUND
   A. Services provided - Processing and treatment
   B. Service area - Nationwide portable treatment facilities
   C. Date established - 1971
   D. Licensing authority - Interstate service by mobile facilities requires coordination with appropriate authorities in each state. Current information indicates that the process has been used in the states of Ohio, Michigan, Illinois, Pennsylvania, Texas, Indiana, Kentucky, Louisiana, and New Jersey. The applicable regulatory agency (usually the state) is provided pertinent laboratory results. If approval is granted by the regulatory agency, Chemfix transports a treatment van to the client's plant site.
   E. Organizational structure - Chemfix, Inc. is a privately owned corporation based in Pittsburgh. Other sales offices are located in Cleveland, Chicago, and Houston.

II. WASTE STREAMS
   A. Accept - Primarily inorganic wastes including heavy metals plus certain refinery and chemical manufacturing wastes. Acceptability of waste based on sample analysis and compatibility to fixation process. Material must be pumpable.
   B. Exclude - As indicated above and some oil wastes and pesticides.
   C. Volume - 25 million gallons in 1973; estimated 1974 volume 50 million gallons. Processing rate is 100-150,000 gallons per 10 hour day. Jobs of less than 100,000 gallons are rarely accepted.

III. WASTE HANDLING
   A. Collection/hauling - Mobile facilities minimize the need for collection and hauling. Processing equipment is brought to the waste generator or other mutually agreeable processing site.
   B. Receiving/storage - No storage by Chemfix; waste generators usually store upwards of 500,000 gallons prior to processing.
   C. Laboratory analysis - Service provided through Chemfix laboratories. Each waste's potential for fixation without leaching is determined prior to Company commitment.
   D. Treatment - Chemical fixation (4 mobile treatment vans)
      - Agitation and mixing of wastes to be fixed.
      - Wastes are pumped to a van where reagent chemicals are added. Depending upon the nature of the wastes it may be necessary to add pre-treatment chemicals to degrade or detoxify the wastes.

- ° Fixation process involves a reaction of two proprietary chemical additives. Fixed wastes are bound in a silicate complex. Company maintains the reaction is permanent and not reversible.
- ° Resulting mixture is pumped out onto the land where it is allowed to solidify (24 - 72 hours)

E. Disposal - Treated wastes are allowed to solidify with resulting solids to be used as fill. Final disposal responsibility rests with the waste generator.

IV. ECONOMICS

A. User charges - Quotations furnished based on waste analysis. Quoted charges range from 2-10¢ per gallon with the average of 4¢ /gallon. (This does not include the cost of removing the fixed wastes if it can not be filled on site.)
B. Costs - Unknown
C. Resource recovery revenues - Not applicable
D. Percent capacity - Current backlog of 20 million gallons. Apppear to be operating at or near capacity.
E. Expansion potential - Potential appears to be good. Operating licenses are located in England and France. Chemfix operations in Japan are now underway. Backlog of wastes would indicate stateside expansion is very likely.

V. COMMENTS - Process appears to be successful in converting some hazardous wastes into forms that are more amenable to conventional waste disposal techniques. However, much information is lacking on the long-term behavior of fixed products past the four years experience obtained to date.

VI. SOURCE

Lindsey, A. & Fields, T. Technology Assessment Summary, April 3, 1974.

Personal communication. Mr. L. P. Gowman, Chemfix, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 5, 1974.

Pottstown Disposal Service
Pottstown, Pennsylvania
(215) 326-6050 (Mr. Clay Rinehart)

I. BACKGROUND
   A. Service provided - Disposal
   B. Service area - Not obtained
   C. Date established - Not obtained
   D. Licensed by the State of Pennsylvania for a landfill operation.
   E. Organizational structure - Subsidiary of SCA Services, Inc.

II. WASTE STREAMS - Industrial Wastes including
   A. Accept - Sludges containing heavy metals
   B. Exclude - Not obtained
   C. Volume - Not obtained

III. WASTE HANDLING
   A. Collection/hauling - Not applicable
   B. Receiving/storage - Not applicable
   C. Laboratory analysis
      ° Analysis performed by Gilbert Associates, an environmental engineering consulting firm.
      ° Analysis performed both prior to commitment and upon receipt of waste.
   D. Treatment - Not applicable
   E. Disposal
      ° Sanitary landfill utilized
      ° No artificial liner.
      ° Natural geologic structure permits collection of over 90% of leachate into drainage system.
      ° Leachate collected in open lagoon and transported to municipal sewerage system.
      ° Leachate constituents inhibitory to microorganisms in the municipal wastewater treatment plant controlled by restricting the types of waste accepted in the landfill.

IV. ECONOMICS
   A. User charges - $1/yd.^{3}
   B. Cost - Not obtained
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Not applicable
   E. Expansion potential - No expansion planned.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Clay Rinehart, Pottstown Disposal Service, with Dan Ward, Office of Solid Waste

Management Programs, June 24, 1974.

Personal communication. Mr. Leslie Rinehart, Pottstown Disposal Service, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 13, 1974.

Sitkin Metal Industries, Inc.
P.O. Box 708
Lewistown, Pennsylvania
(717) 543-5631 (Mr. Sitkin)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
   B. Service area - Continental United States
   C. Date established - 1915
   D. No licenses required
   E. Organizational structure - Publicly owned corp.; affiliated with a transport firm.

II. WASTE STREAMS
   A. Accept - Heavy metals in solution, sludges with heavy metals.
   B. Exclude - All wastes with insufficient quantities of metals to allow profitable reclamation.
   C. Volume - Not obtained

III. WASTE HANDLING
   A. Collection/hauling - 50 trucks; drummed waste only
   B. Receiving/storage - Receiving facilities for drums only; wastes stored in drums.
   C. Laboratory analysis
      ° Analysis performed on each waste both prior to contract commitment and upon receipt.
      ° Analysis performed by Sitkin Metal Industries, Inc.
   D. Treatment
      ° System 1: Gold and silver are recovered in the Precious Metals Recovery System. Mr. Sitkin was not familiar with the technology, but the system does produce a solid residue as a by-product that is stored in drums on the plant site.
      ° System 2: Copper and nickel are recovered in the Valuable Metals Recovery System. (Same comments as for System 1.)
   E. Disposal - Not applicable

IV. ECONOMICS
   A. User charges - Not obtained
   B. Costs - Not obtained
   C. Resource Recovery Revenues - Not obtained
   D. Percent capacity - Not obtained
   E. Expansion potential - A $2.8 million expansion of the plant is under construction.

V. COMMENTS - Mr. Sitkin was cordial over the phone but was very brief in his answers, hence, the absence of some of the information. Mr. Sitkin considers his company to be in the metal recovery business, not the waste processing business.

VI. SOURCE -

Personal communication. Mr. Sitkin, Sitkin Metal Industries, Inc., with Dan Ward, Office of Solid Waste Management Programs, June 7, 1974.

Liquid Waste Disposal of Virginia
Richmond, Virginia
(804) 746-0298 (Mr. Brewington)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
   B. Service area - Virginia
   C. Date established - 1971
   D. Licensed by the State of Virginia for incinerator emission
   E. Organizational structure - Partnership

II. WASTE STREAMS
   A. Accept - Oil waste, paint sludge, solvents/cleaners, tank bottoms
   B. Exclude - Organic and inorganic solids and inorganic liquids
   C. Volume - Not obtained

III. WASTE HANDLING
   A. Collection/hauling - One tank truck
   B. Receiving/storage
      ° Unloading facilities for trucks only
      ° 18,000 gal. of closed tank storage capacity
   C. Laboratory analysis - Waste from a new generator sent to a private laboratory for identification prior to contract commitment.
   D. Treatment - All wastes are burned in a "homemade" liquid waste incinerator. The incinerator consists of a #10 oil burner, metal enclosure, induced draft fan, and a stack. The capacity of the unit is 400 gal./hr. Installation of control equipment has not been attempted and Mr. Brewington claims no residue remains after combustion.
   E. Disposal - Not applicable

IV. ECONOMICS
   A. User charges - 10¢/gal.
   B. Costs - Not obtained
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Not obtained
   E. Expansion potential - Expansion of the incineration facility is not feasible, however, expansion into an ocean disposal operation out of Gulftown, Virginia is being pursued.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Brewington, Liquid Waste Disposal of Virginia, with Dan Ward, Office of Solid Waste Management Programs, June 11, 1974.

REGION IV

Liquid Waste Disposal, Inc.
P.O. Box 19063
Louisville, Kentucky 40219
(502) 968-6173 (Mr. George M. O'Bryan)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal
- B. Service area - The Louisville-Jefferson County area when using Liquid Waste Disposal's equipment. We will and do handle waste liquids outside of this area, provided they are shipped to us in bulk or 55 gal. drums, when shipped by common carrier.
- C. Date established - 1973
- D. Facility monitored by the Jefferson Co. (Kentucky) Air Pollution Authority.
- E. Organizational structure - Affiliated with Liquid Waste Disposal of Norfolk and Richmond, Virginia.

II. WASTE STREAMS
- A. Accept - Primarily organic solvents and cleaners from the paint industry.
- B. Exclude - Non-pumpable wastes, non-combustibles, and organics containing heavy metals.
- C. Volume - Unknown

III. WASTE HANDLING
- A. Collection/hauling - 1800 gal. tank truck available in Louisville area only. Outside this area by common carrier.
- B. Receiving storage - 2-15,000 gal. tanks.
- C. Laboratory analysis - Not available
- D. Treatment - High temperature incineration
  - ° Incinerator (refractory lined)
  - ° Temperatures up to 2000°F for 0.5 seconds
  - ° Pollution control installation planned in near future.
  - ° No ash or solid waste by-product for disposal
  - ° Resource recovery being studied
- E. Disposal - Incineration as indicated above

IV. ECONOMICS
- A. User charges - 10-30¢ per gal.
- B. Costs - Unknown
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - Operating at 50 to 60% under capacity
- E. Expansion potential - Interested in developing a total waste disposal facility with resource recovery. Necessary funding has been secured for this purpose.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. George O'Bryan, Liquid Waste Disposal, Inc., with Don Farb, Office of Solid Waste Management Programs, May 31, 1974.

Personal communication. Mr. George M. O'Bryan, Liquid Waste Disposal, Inc., to Mr. Crews, Office of Solid Waste Management, November 18, 1974.

Nuclear Engineering Co., Inc.
Main Offices: West Coast - Box 156
San Ramon, California 94583
(415) 837-1561 (Mr. G. S. Williamson)

East Coast - Box 7246
Louisville, Kentucky 40207
(502) 426-7160 (Mr. A. Crase)

Burial sites - Morehead, Kentucky;
Sheffield, Illinois;
Beatty, Nevada;
Richland, Washington;
Robstown, Texas

I. BACKGROUND
A. Services provided
° Collection/hauling
° Disposal
B. Service area - Nationwide
C. Date established - Approximately 1958
D. Licensed by state health and environmental authorities
E. Organizational structure - Primarily radioactive waste (low level) burial service, firm has developed disposal service for chemical wastes at Beatty, Nevada and at Sheffield, Illinois. Owns subsidiary waste disposal firm, Texas Ecologists, Robstown, Texas, which handles only non-radioactive hazardous wastes.

II. WASTE STREAMS
A. Accept - Radioactive wastes, pesticides, organic wastes, misc. toxic chemicals, heavy metals, (solids primarily, liquids accepted following state review).
B. Exclude - Highly reactive sodium and potassium.
C. Volume - No specific limit - depends on type and composition.

III. WASTE HANDLING
A. Collection/hauling - Service available
B. Receiving/storage - Warehousing available (18,000 sq. ft.). Mostly drummed waste.
C. Laboratory analysis - Spot checks as required.
D. Treatment - No pre-treatment prior to burial

E. Disposal - Land burial
- ° Burial sites, clay strata, low permeability, clay liners.
- ° 30 ft. trenches, drums lowered in by crane and surrounded by 3x their volume of dry clay.
- ° Beatty site 350 ft. to groundwater, 150 ft. of clay below trenches - 2-4 in. of rain per year (unlimited capacity).
- ° Monitoring wells checked every 2 weeks.

IV. ECONOMICS
- A. User charges - Transportation cost - Approximately $1.00/mile per 40,000 lb. truck. Burial charges $1.25 to $1.75 per $ft.^3$.
- B. Costs - unknown
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - Sheffield site newly opened. Beatty site capacity unlimited.
- E. Expansion potential - Ample land available.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., with Don Farb, Office of Solid Waste Management Programs, June 20, 1974.

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 8, 1974.

Petrolite Corporation
Box 2546
Houston, Texas 77001
(713) 923-9781 (Mr. Ralph Shoberg)

Subsidiary: International Pollution Control, Inc.
Corpus Christi, Texas

I. BACKGROUND
- A. Services provided - Treatment and disposal
- B. Service area - Defined by availability of licensed carriers. Plant sites at Calvert City, Kentucky, and Corpus Christi, Texas.
- C. Date established - unknown
- D. Licensed to operate under Kentucky and Texas state health and environmental authorities.
- E. Organizational structure - Parent firm ($100 million/year corporation) with expertise in petroleum and waste treatment engineering. Corpus Christi subsidiary - International Pollution Control ($10 million per year operation).

II. WASTE STREAMS
- A. Accept - Oily wastes, tetra ethyl lead sludges, plating wastes, and cyanide.
- B. Exclude - Chlorinated hydrocarbons
- C. Volume - 200 gal./hr.

III. WASTE HANDLING
- A. Collection/hauling - not applicable
- B. Receiving/storage
  - ° Truck only
  - ° Receive bulk or drummed wastes
  - ° Storage facilities available
- C. Laboratory analysis - Complete laboratory facilities
- D. Treatment
  - ° Calvert City, Kentucky - Integrated treatment involving biological, chemical and thermal treatment.
    Incinerator - Fixed horizontal kiln - designed for liquids (1800 - 2000°F for 0.7 seconds). Waste heat acts as an unfired afterburner. Natural gas used as support fuel. No ash disposal and no air pollution control (stack gases controlled by regulating feed rate). Planned expansion will triple residence time and increase temperature range by 300°F.
    Biological treatment - (Planned) Conventional treatment (screening sedimentation, - microbial digestion with effluent discharged and sludges forwarded to municipal landfill.)
    Chemical treatment - (Planned) Limited to detoxifying and/or neutralizing chemicals, 200 gallon/hour capacity.
  - ° Corpus Christi, Texas - Oil recovery by electrostatic precipitation. Chemical reduction and degradation to inert by-products, waste residues are deep well injected or landfilled on site (small amounts). 20,000 barrels per month capacity.
- E. Disposal
  - ° Landfill - All Calvert City wastes incinerated or detoxified to inert form for municipal landfill. Corpus Christi - 35 acre

landfill area receives detoxified waste treatment by-products.
- ° Deep well injection - Corpus Christi facilities - COD/BOD of injected wastes are within secondary (sewage) treatment parameters, 5000 ft. well with an 850 ft. unconsolidated injection zone, (capacity unknown). Sedimentary rock strata above and below injection zone.
- ° Operate a landfill for Calvert City and nonputrescible solids from area industry.

IV. ECONOMICS
- A. User charges
  - ° Calvert City cost range up to 25¢/gallon
  - ° Corpus Christi cost is approximately one-third of Calvert City.
  - ° Deep well injection charges are less than Calvert City charges.
- B. Costs
  - ° Corpus Christi - $1.6 million capital investment
  - ° Operating costs - unknown
- C. Resource recovery revenues - unknown
- D. Percent capacity - 60% of capacity due to lack of licensed carriers. Corpus Christi facility initially lost $25,000 per month, increased costs eliminated the small profit from the Corpus Christi plant to approximately break-even.
- E. Expansion potential - Favorable based on regulatory structure to prohibit open dumps.

V. COMMENTS - User charges consistently lower than those projected by Arthur D. Little.

VI. SOURCE -

Personal communication. Mr. Shoberg, Petrolite Corporation, with Don Farb, Office of Solid Waste Management Programs, June 6, 1974.

Personal communication. Mr. Ralph A. Shoberg, Petrolite Corporation, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 5, 1974.

REGION V

Hyon Waste Management Services, Inc.
11700 Stony Island Ave.
Chicago, Illinois 60617
(312) 646-0016 (Mr. E.R. Ackerson)

I. BACKGROUND
- A. Services provided
  - ° Processing/treatment
  - ° Disposal
- B. Service area - Unlimited, but most wastes come from Illinois, Ohio, Indiana, Wisconsin, Michigan.
- C. Date established - 1970
- D. Facility operates under city and state approval.
- E. Organizational structure - Wholly owned subsidiary of International Hydronics, Princeton, New Jersey, an engineering firm specializing in waste treatment engineering/consulting/laboratory analysis/equipment development. 30 employees at Hyon plant include general manager, operations manager, technical manager, and marketing personnel.

II. WASTE STREAMS
- A. Accept -
  1) Inorganic acids and etchants containing dissolved heavy metals.
  2) Alkalies containing metal salts and dissolved organics.
  3) Neutral aqueous salt solutions with suspended and dissolved organics.
  4) Inorganic sludges and precipitates of heavy metals; copper, zinc, arsenic, etc.
  5) Monomers and polymers in concentrated organic-water solutions.
  6) Liquid and solid alkaline cyanides.
  7) Phenol and phenolic derivatives in aqueous solutions.
  8) Chlorinated, nitrated phosphonated and sulfonated liquid hydrocarbons.
  9) Organic tars, solids and powders.
  10) Liquid and solid insecticides and pesticides.
  11) Over-age pharmaceuticals, off spec. and proprietary products.

  Note: All wastes are essentially concentrated materials with a high pollution potential from the entire spectrum of industry: chemical, petrochemical, petroleum, automotive, food, pharmaceutical, metal finishing, etc.

- B. Exclude -
  1) Radioactive wastes
  2) Known explosives
  3) Any material for which a treatment method is not known or the residues or products of treatment cannot reasonably be anticipated.

C. Volume - Daily volumes vary from 50,000 to 75,000 gallons. Maximum capacity of plant 250,000 gals.

III. WASTE HANDLING

A. Collection/hauling available by subcontract to established carriers.

B. Receiving/storage
- Facilities available for bulk and/or drummed delivery by truck, barge, or rail.
- 250,000 gallon storage in tanks and lined basins.

C. Laboratory analysis - Facilities available at Chicago and Princeton to do sample analysis, treatability tests, and quality control.

D. Treatment

1. Incineration
- 12 ft. Ø x 17 ft. Bartlett-Snow rotary kiln (1800°F) and 5 ft. diameter Babcock and Wilcox cyclone furnace (0.3 seconds @ 3000°F) with an unfired afterburner (53 ft. long x 17 ft. diameter with 1 second retention) common to both fireboxes.
- Pollution control devices including primary and secondary condensation impingement scrubbers with an 80 ft. stack.
- Auxiliary incinerator, 20 million BTU/hr. capacity includes vertical Peabody Engineering Co. furnace and associated auxiliaries with 3 stage gas scrubbing.
- A portion of quench and scrubber water supplied from bio-treatment unit. Waste heat used to warm activated sludge units.
- System's capacity - 155 million BTU/hour.
- Evaporation capacity 250,000 gallons/day.

2. Bio-treatment
- Wastes receive pre-treatment to adjust pH in 3 (60,00C gal.) fiberglass lined receiving basins.
- Bio-chemical treatment beds provide a retention sink for heavy metals and refractory organics. Cultured organisms degrade aqueous organics and convert heavy metals to insoluble salts and metal oxides. Organic ash is similar to peat moss. 10 beds (350 ft. x 50 ft. x 4 ft.)
- Activated sludge plant provides further biological degradation. 15 hours retention in 3 tanks - one 24' x 48' x 11' and two 24' x 24' x 11'. Effluent is stabilized and clarified (activated carbon assist).

3. Chemical treatment
- Chemical treatment processes currently rely on acid/base neutralization. Future facilities include specialized chemical treatments, particularly electrochemical oxidations, separations, and chemical recovery.
- Some interest in recovering incinerator scrubber HCl if economically feasible.

IV. ECONOMICS
- A. User charges - Objective is to provide waste disposal at 3-30¢ per gallon for most material.
- B. Costs - Operating cost $1 million/year. Capital costs - 3 1/2 million, including $500,000 for engineering and $1,700,000 for kiln, and incinerator.
- C. Resource recovery revenues - not applicable.
- D. Percent capacity - Supply of wastes currently about 25% capacity, principally limited by general availability of alternative land disposal practice.
- E. Expansion potential - Favorable based on growing incentive to generators to utilize safer disposal methods.

V. COMMENTS - Site located on 59 acres in Lake Calumet Basin, (access to Lake Michigan). Parent firm was instrumental in developing disposal sites for Rollins International in 1968-70.

VI. SOURCE -

Personal Communication. Robert Bruns and Albert Mindler, International Hydronics to Arch Scurlock and Donald Farb, Office of Solid Waste Management Programs, June 4, 1974.

Personal Communication. E. R. Ackerson, Hyon Waste Management Services, Inc. to John Lehman, Office of Solid Waste Management Programs, November 12, 1974.

Nuclear Engineering Co., Inc.
Main Offices: West Coast - Box 156
San Ramon, California 94583
(415) 837-1561 (Mr. G. S. Williamson)

East Coast - Box 7246
Louisville, Kentucky 40207
(502) 426-7160 (Mr. A. Crase)

Burial sites - Morehead, Kentucky;
Sheffield, Illinois;
Beatty, Nevada;
Richland, Washington;
Robstown, Texas

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Disposal
- B. Service area - Nationwide
- C. Date established - Approximately 1958
- D. Licensed by state health and environmental authorities
- E. Organizational structure - Primarily radioactive waste (low level) burial service, firm has developed disposal service for chemical wastes at Beatty, Nevada and at Sheffield, Illinois. Owns subsidiary waste disposal firm, Texas Ecologists, Robstown, Texas, which handles only non-radioactive hazardous wastes.

II. WASTE STREAMS
- A. Accept - Radioactive wastes, pesticides, organic wastes, misc. toxic chemicals, heavy metals, (solids primarily, liquids accepted following state review).
- B. Exclude - Highly reactive sodium and potassium.
- C. Volume - No specific limit - depends on type and composition.

III. WASTE HANDLING
- A. Collection/hauling - Service available
- B. Receiving/storage - Warehousing available (18,000 sq. ft.). Mostly drummed waste.
- C. Laboratory analysis - Spot checks as required.
- D. Treatment - No pre-treatment prior to burial

E. Disposal - Land burial
- Burial sites, clay strata, low permeability, clay liners.
- 30 ft. trenches, drums lowered in by crane and surrounded by 3x their volume of dry clay.
- Beatty site 350 ft. to groundwater, 150 ft. of clay below trenches - 2-4 in. of rain per year (unlimited capacity).
- Monitoring wells checked every 2 weeks.

IV. ECONOMICS
A. User charges - Transportation cost - Approximately $1.00/mile per 40,000 lb. truck. Burial charges $1.25 to $1.75 per $ft.^3$.
B. Costs - unknown
C. Resource recovery revenues - Not applicable
D. Percent capacity - Sheffield site newly opened. Beatty site capacity unlimited.
E. Expansion potential - Ample land available.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., with Don Farb, Office of Solid Waste Management Programs, June 20, 1974.

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 8, 1974.

Waste Management, Inc.
900 Jorie Blvd.
Oak Brook, Ill. 60521
(312) 891-1500 (Mr. Peter Miller)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling/redistribution
      ° Processing/treatment
      ° Disposal
   B. Service area - Midwest; Florida
   C. Date established - Unknown
   D. Licensed by - Unknown
   E. Organizational structure - Waste Management, Inc. is primarily a solid waste firm (90 divisions around country; 59 landfills) which is branching into hazardous waste management.

II. WASTE STREAMS
   A. Accept - Acids, caustics, solvents, heavy metals
   B. Exclude - Cyanides, pesticides, herbicides
   C. Volume - Joliet - 60,000 gal. storage; Chicago - 650,000 gal. (lagoon storage)

III. WASTE HANDLING
   A. Collection/hauling - Line of drum handling and bulk tanker trucks.
   B. Receiving/storage - Facilities available
   C. Laboratory analysis - Complete process development lab for chemical wastes. (Chicago)
   D. Treatment
      1. Chemical process (starting November 1974)
         ° Recovery of some heavy metals as hydroxides
         ° Precipitation of dissolved and colloidal materials
      2. Incineration
         ° Incinerators, primarily for solids. Small capacity burner available.
      3. Biologic process - Pending completion November 1974.
   E. Disposal
      ° Sludges (refinery) for sludge farming practices in So.Ill.
      ° Sanitary landfill - Limed and certain areas isolated from municipal wastes.

IV. ECONOMICS
   A. User charges - Available on request
   B. Costs - Unknown
   C. Resource recovery revenues - Cu, Ni, unknown
   D. Percent capacity - Unknown

E. Expansion potential - Unknown

V. COMMENTS - Engaged in expansion of chemical waste facilities and services.

VI. SOURCE -

Personal communication. Mr. Peter Miller, Waste Management, Inc., with Tom Leshendok, Office of Solid Waste Management Programs, November 23, 1974.

American Recovery Corporation
Riley Road
East Chicago, Indiana 46312
(219) 397-1131 (Mr. Loren Hoboy)

I. BACKGROUND
   A. Services provided - Processing/treatment
   B. Service area - Industrial complex at the southern end of Lake Michigan; Illinois, Indiana, Michigan, Ohio, Missouri
   C. Date established - 1971
   D. License required
   E. Organizational structure
      ° Subsidiary of Union Corporation of Verona, Pennsylvania, a publicly owned corporation.
      ° Subcontracts collection/hauling.
      ° Subcontracts landfill disposal.

II. WASTE STREAMS
   A. Accept - Oil waste (particularly API Separator Sludge), still and tank bottoms, and heavy organics (not included in the above categories) generated by the steel mills at the southern end of Lake Michigan.
   B. Exclude - Inorganics and solvents.
   C. Volume - 50,000 gal./day.

III. WASTE HANDLING
   A. Collection/hauling - not applicable
   B. Receiving/storage
      ° Unloading facilities for trucks, railroad cars, and barges.
      ° 5,000,000 gallons of closed tank storage capacity.
   C. Laboratory analysis
      ° Performed both prior to contract commitment and upon receipt.
      ° Performed by either a private laboratory or American's Curtis Bay Facility in Baltimore.
   D. Treatment - A proprietary process is used to break the oil-water emulsions and subsequently separate water and solids from the oil. The oil is recovered and sold back to the steel mills as #6 fuel oil. The water is discharged to the city sewerage system, and the solids are collected and sent to landfill. The capacity of the process is 100,000 gal./day.
   E. Disposal - not applicable

IV. ECONOMICS
   A. User charges - not obtained
   B. Costs - not obtained
   C. Resource recovery revenues - Reclaimed oil sold at approximately the market price of #6 fuel oil.

D. Percent capacity - 50%
E. Expansion potential - Expansion of the existing facility to include reclamation of crankcase oil is planned. In addition, the company is planning to build portable plants utilizing the same proprietary process for reclamation oils. American feels that portable facilities are necessary because no other areas in the country have adequate quantities of heavy organic wastes to fully utilize a facility.

V. COMMENTS - Although the oil reclamation process is proprietary, Mr. Hoboy said that access to technical data on the process could be arranged by requesting clearance from American's central office. Mr. Hoboy offered to obtain the required approval and to arrange a site visit.

VI. SOURCE -

Personal communication. Mr. Hoboy, American Recovery Corp., with Dan Ward, Office of Solid Waste Management Programs, July 1, 1974.

Personal communication. Mr. Robert A. Taylor, American Recovery Corp., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 20, 1974.

Conservation Chemical Co. (3 locations)
215 West Pershing Rd., Suite 703, Kansas City, Mo. (816) 421-8494
Box 5472 St. Louis, MO 63160 (314) 241-7095
Box 6066 Gary, Indiana 46406 (219) 949-8229
Main Office (Chicago, Illinois) (312) 734-2741

I. BACKGROUND
   A. Service provided - Processing/treatment
   B. Service area - Extensive service area, wastes received from distances in excess of 1000 miles
   C. Date established - 1959 by Norman Hjersted
   D. Licensed by - state environmental and health agencies
   E. Organizational structure - No financial affiliations. Six degreed professional people

II. WASTE STREAMS
   A. Accept - Metal ion solutions, acids, caustics, arsenicals, cyanide, phenols, various sludges.
   B. Exclude - Based on tests and sample analyses
   C. Volume - Monthly reports available from local environmental agencies.

III. WASTE HANDLING
   A. Collection/hauling - Complete line of lined tanker trucks and trailers available. Fleet of tank cars also available.
   B. Receiving/storage - Facilities at Kansas City (8 million gal.), St. Louis, Gary, and Greensboro, N.C. 5 million gallons in storage in total. Drum and bulk wastes.
   C. Laboratory analysis - Sample and batch analysis done on each waste stream (facilities available in Gary, Indiana; another laboratory being opened in Kansas City. A number of outside labs used to supplement our own facilities.)
   D. Treatment
      - Volume reduction (distillation/evaporation)
      - Neutralization of acids,caustics
      - Detoxification by chemical recombination
      - Ferric chloride, copper oxide, potassium fluoride, ferrous chloride, ferric sulfate, and hydrogen fluoride recovery (large supplier of ferric chloride to municipal waste treatment facilities).
      - 700,000 gal. per week
      - Sludge wastes (inert) landfilled
      - Other effluents deep well injected
   E. Disposal
      - K.C. operations - Detoxified waste liquids and sludges allowed to separate.
      - Supernatant evaporates.
      - Solidified sludges are landfilled on site.

IV. ECONOMICS

A. User charges - Most inorganic wastes charged between 3¢ and 12¢ per gallon. Specific charges determined on individual basis, recognizing volume, concentration, complexity, etc. Some materials of good organic value of high metals concentration, taken in at no charge or paid.
B. Costs - Gross $3 million per year.
C. Resource recovery revenues - Unknown
D. Percent capacity - Ferric chloride recovery at 50% capacity (1973). Other capacity levels unknown.
E. Expansion potential - Examining sites in Tennessee, Colorado, and North Carolina. Pursuing landfill permit for K.C. operations.

V. COMMENTS - Management maintains that operating costs and capital costs must be minimal in order to provide a competitive service. Management has achieved this objective by acquiring obsolete chemical plants and facilities.

VI. SOURCE

Anonymous. Making Waste Treatment Pay Off. Chemical Week, 113:55-56, April 3, 1973.

Personal communication. Norman B. Hjersted, Conservation Chemical Company, to John P. Lehman, Office of Solid Waste Management Programs, November 11, 1974

Seymour Manufacturing Co.
500 N. Broadway
Seymour, Indiana 47274
(812) 522-4051 (Mr. John Gregory)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - Indiana, Illinois, West Virginia, Wisconsin, Tennessee, and Michigan.
   C. Date established - 1969
   D. Licensed by the State of Indiana
   E. Organizational structure - Parent firm, Seymour Manufacturing, is an established hardware manufacturer, (e.g., hand tools). Five traveling salesmen employed to find potential waste sources and reclaimed products users.

II. WASTE STREAMS
   A. Accept - Solvents, still and tank bottoms (all waste for disposal must be pumpable)
   B. Exclude - Heavy metals, acids, pesticides
   C. Volume - 40,000 barrels currently on hand

III. WASTE HANDLING
   A. Collection/hauling - 5 box trailers for drums and 4 tank trailers.
   B. Receiving/storage - Receive drum or bulk wastes on contract or job lot basis. Drum and bulk storage available.
   C. Laboratory analysis - Available but not used on wastes destined for incineration.
   D. Treatment - Distillation
      ° Solvents and/or other hydrocarbons (chlorinated and non-chlorinated) are steam distilled and recovered.
      ° Residues and other non-recoverable high BTU organics forwarded to incinerator.
   E. Disposal - Incineration
      ° 2 hydro combustion burners (100 and 250 gal./hr.) @ 2500-3000°F.
      ° Fire chambers 6ft. in diameter and 25 or 28ft. long. Each maintain a 20ft. flame.
      ° Liquids and other high BTU pumpables are atomized into the fire chamber through two nozzles (no support fuel required).
      ° 25ft. stack with no air pollution control equipment (maintain air quality by regulating proper air/fuel ratio).

IV. ECONOMICS
   A. User charges - Disposal costs vary from $7.00 to $20.00 per 55 gal. drum (depends upon water content, hauling distance, and potential for resource recovery).
   B. Costs - Operating costs over first 3 1/2 yrs. ranged up to $750,000 (no profits during this period).

C. Resource recovery revenues - Potentially a million dollar per year operation, past 1 1/2 years of operations have shown profit. (Revenues for May 1974 were $83,000).
D. Percent capacity - Currently operating at capacity. Salesmen have been taken off the road to reduce the flow of incoming wastes.
E. Expansion potential - Plan to install two more burners and raise incinerator capacity to 850 gal./hr.

V. COMMENTS - Recent unsatisfactory stack gas analysis caused state to revoke permit. Hearing held on June 14, 1974, allowed permit to be reinstated under provisions that monthly inspections are satisfactory and meterials control log and documentation is maintained. Browning-Ferris, Inc., is interested in this operation.

VI. SOURCE -

Personal Communication. Mr. John Gregory, Seymour Mfg. Co., with Mr. Don Farb, Office of Solid Waste Management Programs, June 18, 1974.

Approved Chemical Treatment, Inc.
3755 Linden, S.E.
Grand Rapids, Michigan 49608
(616) 452-6021 (Mr. G. M. Allison)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - Michigan, Ohio, Indiana, Illinois
   C. Date established - 1969
   D. Licensed by the State of Michigan for operation of a landfill.
   E. Organizational structure
      ° Partnership
      ° Affiliated with Approved Industrial Removal, Inc. (a transport firm)
      ° Subcontracts all incineration to Berlin and Farrell.

II. WASTE STREAMS
   A. Accept - Acids, caustics, cyanide, heavy metals in solution, oil wastes, solvents/cleaners.
   B. Exclude - Not obtained
   C. Volume - 1 million gals/month of acids, caustics, and heavy metals in solution.

III. WASTE HANDLING
   A. Collection/hauling - 34 tank trucks; steel, aluminum, stainless steel, and rubber lined tanks.
   B. Receiving/storage
      ° Unloading facilities for trucks only.
      ° 50,000 gal. of closed tank storage capacity
   C. Laboratory analysis
      ° Analysis performed on each waste prior to contract commitment and again upon receipt.
      ° Analysis performed by Approved Chemical Treatment Inc. in their on-site laboratory.
   D. Treatment
      ° System 1: Acids and caustics that do not contain heavy metals are blended in a storage tank. The neutralized liquor is pumped to the lime slaker where it is added to the CaO to form $Ca(OH)_2$.
      ° System 2: Lime slurry is added to the solutions containing heavy metals. Mixing and flocculation induce the formation of metal hydroxide precipitates. The slurry is then pumped to sand drying beds where the liquid phase either evaporates or percolates into the soil and the remaining solids are removed for landfill disposal.
      ° System 3: Chromate solutions are first treated with $FeSO_4$ to reduce Cr^{+6} to Cr^{+3}. Lime slurry addition, mixing, and flocculation follow which results in the formation of $Cr(OH)_3$ precipitate. The slurry is then pumped to sand drying beds where the liquid phase either evaporates or percolates into

the soil and the remaining solids are removed for landfill disposal.
- ° System 4: Oils and solvents are segregated and stored. Solvents of greater than 60% purity are sold to a reclamation firm. The remaining solvents and oils are transported to Berlin and Farrell's facility for incineration in a Garber-Davis Liquid Waste unit.
- ° System 5: Cyanide wastes are stored and transported to Berlin and Farrell for processing. Mr. Allison did not know the type of processing used.

E. Disposal
- ° Sanitary landfill
- ° No further information obtained

IV. ECONOMICS

A. User charges
- ° Acids and caustics - 10-20¢/gal.
- ° Solutions containing heavy metals - 10-15¢/lb. of metal in solution
- ° Chromate solutions - 10-15¢/lb. of chromium.
- ° Solvents - 15-20¢/gal.
- ° Oils - 15-20¢/gal.
- ° Cyanide solutions - 40¢/gal.

B. Costs - Not obtained

C. Resource recovery revenues - Not obtained

D. Percent capacity - Not obtained

E. Expansion potential
- ° Seeking a 100 acre site between Chicago and Rockford, Illinois for a complete processing facility to serve the Chicago - Milwaukee industrial complex.
- ° Evaluated an oxidation - magnetic separation system on the pilot-scale for recovery of nickel and copper from metal hydroxide sludge. The processing cost was 35-40¢/lb. of metal recovered.

V. COMMENTS
- ° The drying beds are located over a 40ft. deep sand strata. Samples from groundwater monitoring wells have not indicated any groundwater pollution.
- ° Approved Chemical acts as a clearinghouse and as a consultant for industries with hazardous waste.

VI. SOURCE -

Personal communication. Mr. Allison, Approved Chemical Treatment, Inc., with Dan Ward, Office of Solid Waste Management Programs, June 12, 1974.

Chem-Met Services
18550 Allen Rd.
Wyandotte, Michigan 48192
(313) 282-9250 (Mr. W. Labadie, Pres., or Mr. W. Hartman, Vice Pres.)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal (incinerator when operational)
- B. Service area - Midwest, primarily Michigan. State restrictions on what wastes may be brought into Michigan has limited out of state service with regard to certain wastes.
- C. Date established - 1966
- D. Licensed and chartered by the State of Michigan.
- E. Organizational structure - Disposal service initiated by Messrs. Hartman and Labadie; subsequent success has allowed firm to develop chemical sales and common carrier interests.

II. WASTE STREAMS
- A. Accept - Willing to accept the challenge of any liquid waste disposal problem, except as noted below.
- B. Exclude - Radioactive wastes, arsenic.
- C. Volume - 50 million gals./year, (40 million gallons resold to municipal and industrial concerns, 10 miilion gallons disposed).

III. WASTE HANDLING
- A. Collection/hauling - Service available through common carrier affiliation.
- B. Receiving/storage - 8,000,000 gallon reservoir available. Primarily bulk truck shipments.
- C. Laboratory analysis - No lab service or facility available, rely on generator's analysis
- D. Treatment
  1. Incineration - (currently inoperative)
     - ° Fixed fire box, liquids only
     - ° 2600°F
     - ° 500 gal./hour
     - ° Currently not operating due to land use zoning restrictions.
  2. Chemical detoxification - Neutralization and detoxification of acids and cyanide wastes with lime and sodium hypochlorite (1:4), respectively. Effluent discharged to Detroit Municipal Sewage Treatment Facility.
  3. Chemical fixation
     - ° Liquid wastes are combined with lime fines (calcium base) in a 1 to 1 ratio. Mass solidifies with 50% of liquid being evaporated.
     - ° Process is amenable to oily wastes. Firm feels process may be adequate for arsenic wastes.
     - ° Fixed wastes withstand acid leachings.
     - ° Fixed wastes disposed of in approved landfill.

E. Disposal - Currently no disposal on-site. Material hauled to state approved landfill.

IV. ECONOMICS
A. User charges - 3-10¢/gal. (cyanide $1.50/lb.)
B. Costs - Unknown, annual revenues, $1.5 million (gross)
C. Resource recovery revenues - Approximately 80% of $1.5 million/yr.
D. Percent capacity - Unlimited
E. Expansion potential - Excellent

V. COMMENTS - None

VI. SOURCE -

Personal Communication. Mr. Hartman, Chem-Met Services, with Don Farb, Office of Solid Waste Management Programs, June 21, 1974.

Personal Communication. Mr. William R. Hartman, Chem-Met Services, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 4, 1974.

Environmental Waste Control, Inc.
26705 Michigan Avenue
Inkster, Michigan 48141
(313) 357-5680 or 561-1400 (Mr. Hornby)

I. BACKGROUND
   A. Services provided
      - Collection/hauling
      - Processing/treatment
   B. Service area - Michigan, metropolitan centers of the midwest, and Ontario
   C. Date established - 1971
   D. Licensed by - the state of Michigan
   E. Organizational structure - Public stock corporation. Provides 24 hour service for emergency spill recovery. Regular hours of operation - 7 a. m. to 12 midnight (2 shifts). Other affiliations - unknown.

II. WASTE STREAMS
   A. Accepted - Acids, caustics, oil wastes
   B. Excluded - Pesticides, cyanide, chromic acid, chlorinated solvents (all subcontracted to another firm)
   C. Volume - 5 million gallons per month

III. WASTE HANDLING
   A. Collection/handling - Firm owns a fleet of trucks for waste pickup and transfer. Equipment includes rubber lined, black iron, stainless steel, pressure and vacuum tankers. Oil absorbing and skimming equipment also available.
   B. Receiving/storage - Wastes received by truck or rail (bulk loads primarily). 1 1/2 million gallons storage capacity.
   C. Laboratory analusis - Testing services and laboratories available to analyze waste. Acceptability of wastes based on lab analysis.
   D. Treatment
      - Neutralization of acids and caustics
      - Oil reclamation by centrifuging and diatomaceous earth filtering
      - Water effluents, pre-treated on-site, and discharged to Detroit municipal sewage treatment facility.
      - Non-toxic sludges sent to state approved landfill (clay lined).
      - Non-landfillable wastes sent to incinerator facility.
   E. Disposal - as indicated above

IV. ECONOMICS
- A. User charges - Determined following laboratory analysis of waste.
- B. Costs - unknown
- C. Resource recovery revenues - unknown
- D. Percent capacity - unknown
- E. Expansion potential - Planning $100,000.00 upgrading and enlarging program at Inkster. Anticipating future facility expansion to Jackson, Mississippi.

V. COMMENTS - none

VI. SOURCE -

Personnal communication. Carl Hornby, Environmental Waste Control, Inc., to Donald Farb, Office of Solid Waste Management Programs, May 31, 1974.

Liquid Disposal Co.
3901 Hamblin Rd.
Utica, Michigan
(313) 739-2727 (Mr. Brinkman)

I. BACKGROUND
- A. Services provided - Processing/treatment
- B. Service area - Michigan, Ohio, Indiana
- C. Date established - 1968
- D. Licensed by the State of Michigan for incinerator emission
- E. Organizational structure
  - ° Privately owned corporation
  - ° Affiliated with a transport company
  - ° Disposal of processing residue subcontracted

II. WASTE STREAMS
- A. Accept - Solvents/cleaners, oil, paint sludge
- B. Exclude - Not obtained
- C. Volume - 400,000 gal./month

III. WASTE HANDLING
- A. Collection/hauling - Not applicable
- B. Receiving/storage
  - ° Unloading facilities for trucks only
  - ° 250,000 gal. of closed tank storage capacity
- C. Laboratory analysis
  - ° Analysis performed on waste from new potential customers only
  - ° Analysis performed by private laboratory
- D. Treatment - Wastes are fed into two liquid waste incinerators which have a total capacity of 1000 gal./hr. There are no emission control devices on the units. The slag is put in drums and stored on-site. The incinerators do not operate on a continuous schedule since adequate quantities of waste are not available.
- E. Disposal - Not only incinerator slag, but also unincineratible residue received from customers must be disposed of. This material was being handled on a subcontract basis in a state approved landfill. Recently the state withdrew its approval and revoked the landfill's permit. Liquid Disposal has attempted to gain acceptance of their processing waste at other state approved landfills, but has not been successful. The waste is currently being stored in drums on Liquid Disposal's plant site.

IV. ECONOMICS
- A. User charges - 5-10¢/gal.
- B. Costs - Not obtained
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - 60%

E. Expansion potential - Modifications to the incinerator are planned so that heat can be recovered

V. COMMENTS - Liquid Disposal has agreed under duress from the State of Michigan to install a scrubber for stack gases.

VI. SOURCE -

Personal communication. Mr. Brinkman, Liquid Disposal Co., with Dan Ward, Office of Solid Waste Management Programs, June 12, 1974

Nelson Chemicals Company
12345 Schaefer Highway
Detroit, Michigan 48227
(313) 933-1500 (Richard Hammerstein - Mgr., Environmental Services)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
   B. Service area - Mainly the upper midwest, including Pennsylvania, Alabama, Missouri and included area (10 states).
   C. Date established - Started receiving and processing chemical wastes in the mid 40's.
   D. Licensed yearly by the Department of Natural Resources (WRC), Lansing, Michigan.
   E. Organizational structure - Nelson Chemicals primarily a chemical specialties manufacturing firm with an expanding Industrial Waste Services Dept.

II. WASTE STREAMS
   A. Accept - Cyanides, Chromic acids, waste metal working, finishing and plating chemicals, other mineral acids, oils and solvents which may be incinerated. Pesticides accepted only if our laboratory finds acceptable method for destruction, otherwise rejected.
   B. Exclude - Limited to those wastes listed above. Other wastes not accepted.
   C. Volume - Receive 4-5 million gallons/year 75-80% cyanide wastes.

III. WASTE HANDLING
   A. Collection/hauling - Maintain large fleet of bulk trailers including stainless steel and rubber lined tanks (part of manufactured chemicals trucking business).
   B. Storage/receiving - Drums - We have enough storage capacity to handle approximately 3 days of average business. Bulk capacity about 2 days, but bulk loads are spaced to be handled immediately.
   C. Laboratory analysis - Facilities available.
   D. Treatment - Chemical processing
      ° Acid neutralization with lime
      ° Oxidation of cyanide with hypochlorite
      ° Chromic acid reduction
      ° Pesticide samples are treated with alkaline chlorination, in presence of lime with continuous injection of air. If they respond to treatment the shipment will be accepted.
      ° All by-products are liquids discharged to Detroit Sewage Treatment facility (dilution, decanting, and filtering prior to discharge).
   E. Disposal - as noted above.

IV. ECONOMICS

A. User charges - Destruction only - Cyanide charges will go up to $1.50/lb. as CN (approx. $.75 as Sodium Cyanide); increase due to much higher Chlorine and Caustic Soda costs. The charge per 100% Chromic Acid will remain $.16/lb. of CRO_3; other acids $.03 to $.15 depending upon free acids and presence of metals. Incineration charges are $.08 to $.12/gallon.

B. Costs - Variable due to destruction methods used.

C. Resource recovery revenues - Will be approximately one million for 1974 for the waste services department.

D. Percent capacity - Operate at or near capacity in summer months.

E. Expansion potential - Retained a consultant to study expansion possibilities, no decision thus far. Increased storage/receiving capacity very likely.

V. COMMENTS

° Nelson Chemicals can accept plating and metal working chemicals (Cyanides, Chromic and other acids) in nearly all quantities except pick-ups and shipments must be coordinated by Mr. Hammerstein.

° Nelson Chemicals has a complete laboratory service to analyze incoming and discharged waste and all the charges are based on the chemical content of the waste.

° Nelson Chemicals recently made an agreement with the WRC in Lansing, Michigan concerning unusual, seldom encountered wastes.

° Before receiving any shipments, our laboratory will try to work out a suitable process providing an effluent with the perimeters of the limits set by the City of Detroit. In case of a successful process, we will submit the treated and untreated samples and the proposed process to the WRC in Lansing and only upon their approval will we accept and process the waste.

VI. SOURCE

Personal communication. Mr. Tom Neuthmer, Nelson Chemicals Company, with Don Farb, Office of Solid Waste Management Programs, July 3, 1974.

Personal communication. Mr. Richard Hammerstein, Nelson Chemicals Company, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 19, 1974.

Pollution Controls, Inc.
(Plant) R. R. 1, Box 238
Shakopee, Minnesota 55379
(612) 445-1086 (Mr. G. M. Fell or Dr. G. Combs)

I. BACKGROUND
- A. Services provided - disposal
- B. Service area - Minnesota, Iowa, Wisconsin, Missouri, Illinois, North and South Dakota
- C. Date established - 1962
- D. Licensed by the Minnesota Pollution Control Agency
- E. Organizational structure - Public firm which has been in business for twelve years. Management and majority ownership changed in early 1973.

II. WASTE STREAMS
- A. Accept - Oils, solvents, paint sludges (solids and liquids)
- B. Exclude - Pesticides, cyanides, mercury, cadium and arsenic
- C. Volume - Twelve to fifteen million gal. annually

III. WASTE HANDLING
- A. Collection/hauling - Bulk tankers and van (company owned) and Contract haulers.
- B. Receiving/storage - Initial receiving in 55 gal. drums and tankers. 430,000 gal. bulk storage tank recently installed to minimize drum storage.
- C. Laboratory analysis - No continuous stack analysis. Testing of incoming wastes performed by chemists and chemical engineer.
- D. Treatment - Incineration
  - ° Two identical rotary kilns (2200°F for 2-3 seconds)
  - ° Individual afterburner, venturi scrubber, cyclone demister and common stack.
  - ° Projected modifications include automatic fuel feed cut-off, additional instrumentation.
  - ° Routine testing of stack gases.
  - ° Ashes forwarded to landfill for burial.
- E. Disposal - As indicated above.

IV. ECONOMICS
- A. User charges - Upon request
- B. Costs - Upon request
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - 25% capacity, firm is making money
- E. Expansion potential - Recent addition of storage and waste mixing tank and storage tank farm, as well as proprietary improvements in feeding fuel have increased capacity by 30%.

V. COMMENTS - None

VI. SOURCE -
Personal communication. Mr. Melvyn L. Bell, Pollution Controls Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 22, 1974.

Erieway Pollution Control, Inc.
33 Industry Drive
Bedford, Ohio 44146
(216) 439-2955 (Mr. J.M. Golombek, P.E.)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Final disposal
- B. Service area - Ohio, Michigan, Indiana, Kentucky, West Virginia, Pennsylvania, and New York
- C. Date established - 1972
- D. Licensed by the State of Ohio for the disposal of hazardous liquid waste materials.
- E. Organizational structure
  - ° Privately owned corporation
  - ° Subcontracts incineration of liquid wastes
    Mr. Golombek's consulting firm, Inviron, Inc. is on a retainer for process development and all other technical work, including new facilities, expansion and construction.

II. WASTE STREAMS
- A. Accept - Acids, cyanides, heavy metals in solution, oily wastes, solvents/cleaners
- B. Exclude - Not obtained
- C. Volume - 3-4 MG/month

III. WASTE HANDLING
- A. Collection/hauling
  - ° 14 tanker transports
  - ° 2 flatbed trailers for drummed waste
  - ° 1 small tank truck (1600 gal. cap.)
- B. Receiving/storage
  - ° Unloading facilities for tank trucks, railroad cars, and flatbed trailers.
  - ° 350,000 gals. of underground storage capacity
  - ° Fiberglass and epoxy lined tanks
- C. Laboratory analysis
  - ° Performed both prior to contract commitment, upon receipt, and checked periodically during contract life.
  - ° All analytical laboratory work performed by Inviron, Inc.
- D. Treatment
  - ° System 1: Chromate solutions are first treated with a reducing agent to convert Cr^{+3}. Caustic addition, mixing, and flocculation follow which results in the formation of $Cr(OH)_3$ precipitate. The precipitate is separated from the liquid phase by sedimentation. The sludge is chemically solidified and sent to landfill. The supernatant which has a high pH, is used to neutralize acids.

- System 2: A caustic material is added to the solutions containing heavy metals. Mixing and flocculatior induces the formation of metal hydroxide precipitates. The slurry (liquid and solid phases) is then chemically fixed and sent to landfill.
- System 3: Acids not containing heavy metals are neutralized by the addition of the alkaline supernatant from the chromate treatment system.
- System 4: The pH of cyanide waste is raised by caustic addition. The waste is then subjected to continuous chlorination and agitation. Nitrogen is liberated and a carbonate sludge is formed which is chemically fixed along with the liquid phase and sent to landfill.
- System 5: A proprietary process is used to reclaim oil. The influent waste oil contains 80% water and acid; the effluent reclaimed oil contains only 0.5% water. The byproducts of the process are chemically fixed and sent to landfill.
- System 6: Solvents are short term stored and transported to an incineration facility for combustion by a subcontractor.

E. Disposal
- Sanitary landfill
- Clay lined
- Wells for capturing leachate, if necessary, and equipment for pumping it back to the processing facility.
- Daily groundwater samples submitted to the state.

IV. ECONOMICS

A. User charges - Varies with waste handled
B. Costs - Varies with waste handled
C. Resource recovery revenues - Not obtained
D. Percent capacity - Not obtained
E. Expansion potential
- Plans to increase capacity to 12MG/month
- Plans to expand storage to 0.5 MG
- Plans to expand heavy metal waste treatment system
- Plans to add phenol treatment system
- Plans to add incineration capability
- Plans to add oil reprocessing capability

V. COMMENTS

- The facilities described above are actually located on two different sites about 10 miles apart. One site is, of course, in Bedford and the other is in Cleveland. Mr. Golombek did not specify how the facilities were divided between the sites because he considered the sites close enough geographically and integrated enough to be synonymous.
- Waste treatment processes were designed for heavy metals, cyanides, and oily wastes to conform to the premise of no liquid discharge after treatment, thus all influents except recoverable oils are chemically solidified add the need for a liquid discharge permit is negated.

- The chemically solidified material has been approved by the Ohio EPA for intermediate cover material in landfills.

VI. SOURCE -

Personal communication. Mr. Golombek, Erieway Pollution Control, Inc., with Dan Ward, June 26 and July 12, 1974.

Koski Construction Co.
5841 Woodman Ave.
Ashtabula, OH
(216) 997-5337 (Mr. Koski)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - Ohio
   C. Date established - 1964
   D. Licensed by - Ohio EPA for a landfill operation
   E. Organizational structure - Individual owner

II. WASTE STREAMS
   A. Accept - Acids, caustics, sludge with heavy metals, solvents/cleaners
   B. Exclude - Not obtained
   C. Volume - 500,000 gal./month

III. WASTE HANDLING
   A. Collection/hauling
      ° Equipment for dredging lagoons
      ° Tank trucks
      ° Roll-off containers modified to prevent leakage of liquids
   B. Receiving/storage
      "Dry" sludge to a diked area.
      ° All other sludges and liquids to a clay-lined lagoon
   C. Laboratory Analysis
      ° Performed prior to contract commitment by Koski
      ° Performed upon receipt of waste by both Koski and the waste generator
   D. Treatment - Solids - liquid separation occurs in the lagoon. The liquid fraction is discharged to a receiving water whenever a near neutral pH is obtained in the lagoon. The solids are periodically dredged out of the lagoon and placed in a diked area.
   E. Disposal
      ° In the diked area
      ° No cover material applied
      ° 3 year life expectancy

IV. ECONOMICS
   A. User charges - Not obtained
   B. Costs - Not obtained
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Not applicable
   E. Expansion potential - Not obtained

V. COMMENTS - None

VI. SOURCE -
   Personal communication. Mr. Koski, Koski Construction Co., with Dan Ward, Office of Solid Waste Management Programs. June 27, 1974.

Systems Technology Corporation
Systech Waste Treatment Center
Baxter Rd. at Route 73
Franklin, Ohio 45005
(513) 746-8100 (For Dayton callers - 228-3780)
Mr. A. H. Kohnen, Mr. Ken Cates

I. BACKGROUND
- A. Services provided - Physical, chemical, biological treatment, and thermal destruction using a fluidized bed incinerator.
- B. Service area - 150 mile radius (greater in special cases).
- C. Date established - January 1974, with operation beginning May 1974.
- D. No specific licenses are required although approval was required and obtained at several regulative levels.
- E. Organizational structure
  - ° Subsidiary of Systems Research Laboratories, Inc.
  - ° Subcontract with the Miami Conservancy District for discharge of pre-treated wastes into regional wastewater treatment plants.

II. WASTE STREAMS
- A. Accept
  - ° Non-combustibles - acids, caustics, plating wastes, and other compatible wastes.
  - ° Combustibles - Most liquids that can be disposed of by thermal destruction including very viscious materials and materials with high solids content.
- B. Exclude - Determined on a case by case basis.
- C. Volume - Wastes are accepted in volumes ranging from drum to tank truck quantities.

III. WASTE HANDLING
- A. Collection/hauling - By others.
- B. Receiving/storage
  - ° Unloading facilities for trucks and potential capability for railroad cars.
  - ° One million gallons of storage capacity in concrete and steel tanks, some of which have special chemical resistant coatings.
- C. Laboratory analysis
  - ° Analysis of wastes performed before contract and upon receipt of wastes.
  - ° Performed by Systech Waste Treatment Center.
- D. Treatment
  - ° Non-combustible materials - All treatment is performed on a batch basis. The specific treatment process used is dependent upon the nature of the waste. Pre-treated wastes are discharged to the regional wastewater treatment plant for final treatment.
  - ° Combustible materials - All combustibles are stored, blended, and then pumped into a large fluidized bed incinerator, which is equipped with a high energy Venturi-Scrubber.

IV. ECONOMICS
- A. User charges - By quotation
- B. Costs - Proprietary
- C. Resource recovery revenues - Proprietary
- D. Percent capacity - Proprietary
- E. Expansion potential - The operating capacity of this site is capable of being doubled.

V. COMMENTS - This facility has been visited by members of the Hazardous Waste Management Division staff.

VI. SOURCE -

Personal communication. Mr. Cates, Systems Technology Corp., with Dan Ward, Office of Solid Waste Management Programs, July 12, 1974.

Personal communication. Mr. Thomas J. Wittmann, Systems Technology Corp., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 25, 1974.

Rodgers Laboratories, Inc.
4135 S. 6th St.
Milwaukee, Wisconsin 53221
(414) 483-3000 (Mr. Tom Rodgers)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing
- B. Service area - Wisconsin, Illinois
- D. Date established - 1947
- D. Licensed by Milwaukee Sewerage Commission for waste water discharge to the sewerage system
- E. Organizational structure
  - ° Family owned company
  - ° Subcontracts disposal to Sanitary Transfer Landfill, Inc.

II. WASTE STREAMS
- A. Accept - Solvents and acids with heavy metals
- B. Exclude - Unknown
- C. Volume - 3000 gal./day

III. WASTE HANDLING
- A. Collection/hauling
  - ° One flat-bed truck for hauling drummed waste
  - ° Operates 8 hr/day, 6 days/week
  - ° One 2000 gal. tank wagon
- B. Receiving/storage
  - ° Unloading facilities for drums and bulk (2000 gal.)
  - ° Wastes stored in closed tanks with total capacity of 14,000 gallons
- C. Laboratory analysis - Not available
- D. Treatment
  - ° System 1: Solvents are fed into three batch stills with capacities of 500,1000, and 1,500 gal./day. Then purified solvents that are recovered are sold to the paper, printing, paint, and electronics industries while the still bottoms are drummed and sent to landfill.
  - ° System 2: Silver in solution is precipitated as a chloride and the precipitate is settled. The supernatant is discharged to the municipal sewerage system and the sludge is stored in drums. When a sufficient quantity of sludge has accumulated, the silver is extracted from the sludge as a nitrate.
  - ° System 3: Metals in solution are precipitated as sulfides and the precipitate is settled. The supernatant is discharged to the municipal sewerage system and the sludge is stored in drums if the entrapped metals are marketable, otherwise, the sludge is landfilled. When a sufficient quantity of sludge has accumulated, the marketable metals are extracted.

E. Disposal
° Landfill - Process residuals are sent to a landfill, operated by Sanitary Landfill and Transportation Co., Inc.

IV. ECONOMICS
A. User charges - Unknown
B. Costs - Unknown
C. Resource recovery revenues - Solvents are sold for $0.30 - $1.00 per gal.
D. Expansion potential - About six years ago, demonstration funds were sought from state and federal sources for expansion of the existing facility by addition of an incinerator. The effort was unsuccessful, so the plans were dropped.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Tom Rodgers, Rodgers Laboratories, Inc., with Dan Ward, Office of Solid Waste Management Programs, June 6, 1974.

Waste Research and Reclamation Co., Inc.
Route 3
Eau Claire, Wisconsin 54701
(715) 834-9624 (Dr. She)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
   B. Service area - Wisconsin, Minnesota, Illinois, Iowa, Michigan, Missouri, Nebraska
   C. Date established - 1970
   D. Current reclamation practices preclude the need for waste disposal permits, but firm does maintain close liaison with state authorities
   E. Organizational structure - Private firm with no other known affiliations.

II. WASTE STREAMS
   A. Accept - Copper in solution, solvents, and oils
   B. Exclude - Highly toxic, highly volatile, and explosive wastes. Wastes with acute or chronic toxicity are not accepted.
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/handling - Tank truck pickup available. 500 mile operating radius.
   B. Receiving/storage - Receive bulk or drum. 150,000 gal. storage capacity available.
   C. Laboratory analysis - Available
   D. Treatment
      ° Evaporation and distillation recovery
      ° Recover oil, solvents and some copper (aluminum replacement)
      ° Waste by products either used as boiler fuel or drummed and shipped to an approved landfill.
   E. Disposal - no disposal by company, only recovery and shipment to landfill at present. Will have incineration facility in a few months.

IV. ECONOMICS
   A. User charges - Charges based on waste analysis and potential for recovery and resale.

B. Costs - Unknown
C. Resource recovery revenues - Unknown
D. Percent capacity - Treating enough wastes to maintain small profit but not operating at capacity.
E. Expansion potential - Planning to develop a small incinerator facility in near future. Will eventually expand to 3 - 4x current size.

V. COMMENTS - None

VI. SOURCE

Personal communication. Dr. She, Waste Research and Reclamation Co., Inc., with Don Farb, Office of Solid Waste Management Programs, June 17, 1974.

Personal communication. Dr. She, Waste Research and Reclamation Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 18, 1974.

REGION VI

Rollins Environmental Services
(Main Offices) One Rollins Plaza
Wilmington, Delaware 19803

Plant Locations:
Baton Rouge, LA
Bridgeport, NJ
Houston, TX

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal
- B. Service area - Nationwide
- C. Date established - Construction completed in New Jersey in 1970; in Louisiana in 1971; in Houston in 1971.
- D. Licensed by - Respective state health and environmental agencies.
- E. Organizational structure - Rollins Environmental Services is a part of Rollins International, a diversified corporation with major interests in highway transportation (Matlack Trucking).

II. WASTE STREAMS
- A. Accept - Generally all industrial chemical wastes and limited explosives or poisons, including: acids, caustics, chlorinated and non-chlorinated organics, plating and etchant solutions, paint sludges, pesticides, cyanide, scrubber effluents, etc.
- B. Exclude - Only known exception is radioactive wastes.
- C. Volume - 250,000 gallons/day at capacity.

III. WASTE HANDLING
- A. Collection/hauling - Service provided by RES and Matlack Trucking subsidiary. Complete line of bulk and drum handling equipment.
- B. Receiving/storage - Facilities available for receiving and storing bulk or drummed wastes, capacity - up to 500,000 gallons.
- C. Laboratory analysis - Sample analysis and repeated analysis upon receipt of shipment.
- D. Treatment
  1. Chemical degradation
     Neutralization of acids and alkalies -- insoluble residues are landfilled, certain soluble salts receive ocean disposal.
     Oxidation or reduction of certain organic compounds and metals -- non-toxic residues (landfilled) or recovered material, (e.g. copper).
     Precipitation of dissolved and colloidal materials.
  2. Incineration
     Rotary kiln (1500° - 2000°F) primarily liquids
     Afterburner (2500°F)
     17,000 to 20,000 gal./day (24 hr. operation)
     Double chambered quench - scrub section up to 800 gal./min. alkali spray.
     Sludges landfilled.

3. Biological treatment
   Flocculation and sludge separation.
   Solids are landfilled.
   Supernatant - equalization, -- trickling filter -- equalization, -- oxidation -- stabilization -- discharge to creek.

E. Disposal (as indicated above)
   Stabilized effluents discharged to aquatic environment.
   Insoluble salts and inert sludges are landfilled.
   Certain soluble salts and brine solution receive ocean disposal.

IV. ECONOMICS
   A. User charges
      ° Transportation costs - $0.60 cwt. per 100 miles.
      ° Disposal charges - 1.0 to 3.0¢ per pound.
   B. Costs - Construction costs for 3 plants (Bridgeport, Baton Rouge and Houston) - 22 million.
   C. Resource recovery revenues - Copper recovery, revenues unknown.
   D. Percent capacity - Unknown
   E. Expansion potential - Investigating Cleveland, Chicago, and Detroit areas for additional sites.

V. COMMENTS - Houston, Baton Rouge, and Logan Township (New Jersey) facilities are similar in design and operating characteristics.

VI. SOURCE -

Personal communication. Mr. A. J. D'Lauro, Jr., Rollins International, Inc., to Mr. Sam Morekas, Office of Solid Waste Management Programs, November 8, 1974.

U.S. Pollution Control, Inc.
2000 Classen Center, Suite 224 So.
Oklahoma City, Oklahoma 73106
(405) 528-8371 (Mr. Wesley W. Smith, Mr. Harry A. Hansen)

Branch Office:
101 West 71st St. South
Tulsa, Oklahoma 74132
(918) 743-3038 (Mr. Wayne A. Hale)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal
  - ° Consultant Pollution Engineering
- B. Service area - Oklahoma, Texas, Kansas, Missouri, Arkansas
- C. Date established - 1968
- D. Licensed by the State of Oklahoma
- E. Organizational structure - Management has had previous experience with State Health Dept. in developing criteria for solid waste management rules and regulations. Also, has had previous experience with the Oklahoma Water Resources Board in developing criteria for Deep-Well disposal and the formulation of present rules and regulations.

II. WASTE STREAMS
- A. Accept - Plating wastes, oily water, solvents, dilute cyanide
- B. Exclude - Radioactive materials
- C. Volume - 100,000 - 250,000 gal./month

III. WASTE HANDLING
- A. Collection/hauling - Small fleet of vacuum and pump transport and tank trucks (additional vehicles available from subcontractors) Some USPCI units are lined with stainless steel.
- B. Receiving/storage - 250,000 gal.
- C. Laboratory analysis - Subcontractors
- D. Treatment - Limited to pH adjustment (pH 4) and gravity and filter separation of undesirable solids.
- E. Disposal
  1. Deep Well - Two deep wells (3000' and 7000')
     3000 ft. well under vacuum.
     Both wells inject into a confined consolidated limestone strata - 500 to 1300 ft. thick.
     Wells sanctioned by the Oklahoma Water Resource Board and the Oklahoma Corp. Commission (oil reserve protection).
  2. Landfill - Currently in the process of establishing a land-

fill, should be operational in fall of 1974; 110 acres, 20 year life.
- Permeability 10^{-10} in./hr., clay strata
- Evaporation exceeds precipitation
- 400 ft. to groundwater (saline and sulfur)
- Monitoring wells as required
- Also, plan to spread liquid waste on soil and allow soil microbe degradation.

IV. ECONOMICS
- A. User charges - 2.25¢/gal. disposal (transportation 7.5¢ to 13¢/gal.)
- B. Costs - Unknown
- C. Resource recovery revenues - Currently operating in the black
- D. Percent capacity - 10%
- E. Expansion - Interested in exploring resource recovery of various types of oil and plating wastes

V. COMMENTS - Management concerned about fate of deep well disposal practices in future federal regualtions and guidelines and stressing effective State rules and regulations on design, operation, and monitoring.

VI. SOURCE -

Personal communication. Mr. Hansen, U.S. Pollution Control, Inc., with Don Farb, Office of Solid Waste Management Programs, June 24, 1974.

Personal communication. Mr. Hansen, U.S. Pollution Control, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 18, 1974.

BioEcology Systems, Inc.
4100 East Jefferson
Grand Prairie, Texas 75050
(214) 264-4281 (Dr. W.E. Brown)

I. BACKGROUND
- A. Services provided
  - ° Processing/treatment
  - ° Disposal
- B. Service area - Dallas and northern Texas.
- C. Date established - 1972
- D. Licensed by the Texas Water Quality Board
- E. Organizational structure - Unknown

II. WASTE STREAMS
- A. Accept - Grease/oil wastes and trappings, solvents (non-halogenated), heavy metals in acid, cyanide, caustics.
- B. Exclude - Halogenated hydrocarbons, radioactive wastes.
- C. Volume - Unknown

III. WASTE HANDLING
- A. Collection/hauling - Subcontracted by firm
- B. Receiving/storage - Unknown
- C. Laboratory analysis - Laboratory analysis provided to assure quality control.
- D. Treatment
  1. Incineration
     - ° 40ft. x 8ft. fixed cylindrical kiln (20-60 seconds @ 1500 - 2000°F).
     - ° No air pollution control equipment, air quality maintained by regulating waste feed rate.
     - ° Natural gas assist.
     - ° All wastes (pumpable liquids) atomized in kiln.
     - ° Inert slag and fly ash landfilled on site.
  2. Biological treatment
     - ° Screening --- sedimentation --- activated sludge --- clarifer.
     - ° Effluent COD reduced to sewer discharge quality (Trinity River Authority).
     - ° Sludges landfilled (Toxic substances tied up).
  3. Chemical Treatment
     - ° Neutralization of acids and caustics.
     - ° Hexavalent chromium reduction by SO_3.
     - ° Cyanide oxidation with chlorine.
     - ° Effluents discharged to Trinity River Waste Treatment Authority on a batch basis (pre-analysis by BioEcology).
     - ° Recover copper, cadmium silver, and oil.
- E. Disposal - Landfill
  - ° Non-toxic sludges and slag disposed of on site.
  - ° Clay soil with little to no permeability. Texas Water Quality Board has advised that monitoring wells are unnecessary. (Groundwater level undetermined, never found).
  - ° Estimated lifetime - 6-7 years.

IV. ECONOMICS
- A. User charges
  - ° Grease and oil - 7-14¢/gal.
  - ° Non-halogenated solvents - 9-12¢/gal.
  - ° Chromate wastes - 20-30¢/gal.
  - ° Cyanide Alkalis - $0.48 - $1.51/gal.
  - ° Toxic metals - 17-20¢/gal.
  - ° Disposal charges for other wastes available upon request.
- B. Costs - Capital outlay - $400,000; operating costs unknown.
- C. Resource recovery revenues - Unknown
- D. Percent capacity - Below current capacity due to:
  - ° Energy crisis reducing supply of organic wastes.
  - ° Competition from three licensed open pit operations.
- E. Expansion potential - Unknown

V. COMMENTS - None

VI. SOURCE -

Personal communication. Dr. Brown, BioEcology Systems, Inc., with Don Farb, Office of Solid Waste Management Programs, June 5, 1974.

Malone Service Co.
P.O. Box 709
Texas City, Texas 77590
(713) 488-3463 (Mr. Paul Malone)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - Texas and coastal area
   C. Date established - Established vacuum trucking and disposal service in 1954.
   D. Licensed by the Texas Water Quality Board
   E. Organizational structure - Diversified, family operated business with interests and activity in waste chemical resale, oil reclamation, trucking and oil wells. Marine Pollution Control interest handles Gulf Coast spill clean up.

II. WASTE STREAMS
   A. Accept - Petroleum industry wastes including wastes from Monsanto, Texas City Petroleum, Marathon Oil, GAF, American Oil, and Gulf Oil.
   B. Exclude - Unknown
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Trucks, (flat bed and vacuum tank) 3 dredges, and several skimming barges.
   B. Receiving/storage - Truck receiving currently, will establish barge receiving facilities in the near future. 150,000 barrels storage (bulk) capacity.
   C. Laboratory analysis - Unknown
   D. Treatment - Resource recovery and chemical degradation
      ° Oil reclamation process includes heat treatment and separation. Reclaimed oils used for road oil, fuel, and road beds. Capacity 200,000 gal./day.
      ° Pre-treatment of deep well injected wastes includes neutralization and filtration. Injected effluent considered to be "treated quality." Other by-products subcontracted to approved landfill.
   E. Disposal - Deep well injection
      ° Treated effluents injected into 5260ft. deep well
      ° Injection strata 150ft. of sand with consolidated strata above
      ° License permits 250,000 gal./day to be injected.

IV. ECONOMICS
   A. User charges - 4-6¢/gal. Additional charges may be added based upon waste composition
   B. Costs - Total capital outlay over past ten years - $5,000,000. Invested $1,000,000 in Marine Pollution Control.
   C. Resource recovery revenues - Unknown
   D. Percent capacity - Unknown

E. Expansion potential - Currently operate on 75A (Texas City). Plan to expand to 200 acres and add total waste handling capability. Also projecting barge receiving facility.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Paul Malone, Malone Service Co., with Mr. Don Farb, Office of Solid Waste Management Programs, June 6, 1974.

Petrolite Corporation
Box 2546
Houston, Texas 77001
(713) 923-9781 (Mr. Ralph Shoberg)

Subsidiary: International Pollution Control, Inc.
Corpus Christi, Texas

I. BACKGROUND
- A. Services provided - Treatment and disposal
- B. Service area - Defined by availability of licensed carriers. Plant sites at Calvert City, Kentucky, and Corpus Christi, Texas.
- C. Date established - unknown
- D. Licensed to operate under Kentucky and Texas state health and environmental authorities.
- E. Organizational structure - Parent firm ($100 million/year corporation) with expertise in petroleum and waste treatment engineering. Corpus Christi subsidiary - International Pollution Control ($10 million per year operation).

II. WASTE STREAMS
- A. Accept - Oily wastes, tetra ethyl lead sludges, plating wastes, and cyanide.
- B. Exclude - Chlorinated hydrocarbons
- C. Volume - 200 gal./hr.

III. WASTE HANDLING
- A. Collection/hauling - not applicable
- B. Receiving/storage
  - ° Truck only
  - ° Receive bulk or drummed wastes
  - ° Storage facilities available
- C. Laboratory analysis - Complete laboratory facilities
- D. Treatment
  - ° Calvert City, Kentucky - Integrated treatment involving biological, chemical and thermal treatment.
    Incinerator - Fixed horizontal kiln - designed for liquids (1800 - 2000°F for 0.7 seconds). Waste heat acts as an unfired afterburner. Natural gas used as support fuel. No ash disposal and no air pollution control (stack gases controlled by regulating feed rate). Planned expansion will triple residence time and increase temperature range by 300°F.
    Biological treatment - (Planned) Conventional treatment (screening-sedimentation, - microbial digestion with effluent discharged and sludges forwarded to municipal landfill.)
    Chemical treatment - (Planned) Limited to detoxifying and/or neutralizing chemicals, 200 gallon/hour capacity.
  - ° Corpus Christi, Texas - Oil recovery by electrostatic precipitation. Chemical reduction and degradation to inert by-products, waste residues are deep well injected or landfilled on site (small amounts). 20,000 barrels per month capacity.
- E. Disposal
  - ° Landfill - All Calvert City wastes incinerated or detoxified to inert form for municipal landfill. Corpus Christi - 35 acre

landfill area receives detoxified waste treatment by-products.
- ° Deep well injection - Corpus Christi facilities - COD/BOD of injected wastes are within secondary (sewage) treatment parameters, 5000 ft. well with an 850 ft. unconsolidated injection zone, (capacity unknown). Sedimentary rock strata above and below injection zone.
- ° Operate a landfill for Calvert City and nonputrescible solids from area industry.

IV. ECONOMICS
- A. User charges
  - ° Calvert City cost range up to 25¢/gallon
  - ° Corpus Christi cost is approximately one-third of Calvert City.
  - ° Deep well injection charges are less than Calvert City charges.
- B. Costs
  - ° Corpus Christi - $1.6 million capital investment
  - ° Operating costs - unknown
- C. Resource recovery revenues - unknown
- D. Percent capacity - 60% of capacity due to lack of licensed carriers. Corpus Christi facility initially lost $25,000 per month, increased costs eliminated the small profit from the Corpus Christi plant to approximately break-even.
- E. Expansion potential - Favorable based on regulatory structure to prohibit open dumps.

V. COMMENTS - User charges consistently lower than those projected by Arthur D. Little.

VI. SOURCE -

Personal communication. Mr. Shoberg, Petrolite Corporation, with Don Farb, Office of Solid Waste Management Programs, June 6, 1974.

Personal communication. Mr. Ralph A. Shoberg, Petrolite Corporation, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 5, 1974.

Texas Ecologists Inc.
Robstown, Texas
(512) 387-3518 (Dowell Buckner, General Manager)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Processing/treatment
  - ° Disposal
- B. Service area - Corpus Christi, Houston, Freeport, Dallas, Austin, Texas Gulf Coast
- C. Date established - April 1973
- D. Licensed by the State of Texas ("No discharge permit")
- E. Organizational structure - Wholly owned subsidiary of Nuclear Engineering Co. Operate 8 a.m. - 5 p.m. shift 5 days/week (emergency service available)

II. WASTE STREAMS
- A. Accept - Acids, alkalies, solvents, detergents, oil, tank bottoms, organic wastes, pesticides
- B. Exclude - Cyanide and radioactive wastes
- C. Volume - No specific limit. Depends on type and composition.

III. WASTE HANDLING
- A. Collection/hauling - Company operates its own fleet of trucks (primarily box and flatbed trailer).
- B. Receiving/storage - Prefer drummed waste, storage area available for drummed waste.
- C. Laboratory analysis - Rely on waste generator's analysis. Do spot checks for quality control. Job lot consignments, only.
- D. Treatment
  - ° Acids/caustic neutralization
  - ° Oil recovery by 3 tank gravity/heat sedimentation
  - ° Recovery oil used by municipalities for heating fuel
  - ° Non-saleable volatile liquid separates evaporated
  - ° Residues and solids landfilled
- E. Disposal
  1. Incinerator - Fixed, non-scrubbed kiln currently not operational.
  2. Landfill
     - ° 240 acre Class I site, natural clay strata 35 ft.
     - ° Trenches 17-19 feet deep, lined with 10-15 feet of natural clay (meets local standards for landfill lining)
     - ° Three monitoring wells - No indication of leachate migration

IV. ECONOMICS
- A. User charges - Based on waste composition and quantity

B. Costs - Specific costs unknown.
C. Resource recovery revenues - Unknown
D. Percent capacity - Unknown
E. Expansion - Efforts to establish facility at Midlothian were dropped due to local opposition.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Buckner, Texas Ecologists, Inc., to Don Farb, Office of Solid Waste Management Programs, May 31, 1974.

Personal communication. Mr. Buckner, Texas Ecologists, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 22, 1974.

REGION VII

Conservation Chemical Co. (3 locations)
215 West Pershing Rd., Suite 703, Kansas City, Mo. (816) 421-8494
Box 5472 St. Louis, MO 63160 (314) 241-7095
Box 6066 Gary, Indiana 46406 (219) 949-8229
Main Office (Chicago, Illinois) (312) 734-2741

I. BACKGROUND
- A. Service provided - Processing/treatment
- B. Service area - Extensive service area, wastes received from distances in excess of 1000 miles
- C. Date established - 1959 by Norman Hjersted
- D. Licensed by - state environmental and health agencies
- E. Organizational structure - No financial affiliations. Six degreed professional people

II. WASTE STREAMS
- A. Accept - Metal ion solutions, acids, caustics, arsenicals, cyanide, phenols, various sludges.
- B. Exclude - Based on tests and sample analyses
- C. Volume - Monthly reports available from local environmental agencies.

III. WASTE HANDLING
- A. Collection/hauling - Complete line of lined tanker trucks and trailers available. Fleet of tank cars also available.
- B. Receiving/storage - Facilities at Kansas City (8 million gal.), St. Louis, Gary, and Greensboro, N.C. 5 million gallons in storage in total. Drum and bulk wastes.
- C. Laboratory analysis - Sample and batch analysis done on each waste stream (facilities available in Gary, Indiana; another laboratory being opened in Kansas City. A number of outside labs used to supplement our own facilities.)
- D. Treatment
  - ° Volume reduction (distillation/evaporation)
  - ° Neutralization of acids,caustics
  - ° Detoxification by chemical recombination
  - ° Ferric chloride, copper oxide, potassium fluoride, ferrous chloride, ferric sulfate, and hydrogen fluoride recovery (large supplier of ferric chloride to municipal waste treatment facilities).
  - ° 700,000 gal. per week
  - ° Sludge wastes (inert) landfilled
  - ° Other effluents deep well injected
- E. Disposal
  - ° K.C. operations - Detoxified waste liquids and sludges allowed to separate.
  - ° Supernatant evaporates.
  - ° Solidified sludges are landfilled on site.

IV. ECONOMICS

A. User charges - Most inorganic wastes charged between 3¢ and 12¢ per gallon. Specific charges determined on individual basis, recognizing volume, concentration, complexity, etc. Some materials of good organic value of high metals concentration, taken in at no charge or paid.

B. Costs - Gross $3 million per year.

C. Resource recovery revenues - Unknown

D. Percent capacity - Ferric chloride recovery at 50% capacity (1973). Other capacity levels unknown.

E. Expansion potential - Examining sites in Tennessee, Colorado, and North Carolina. Pursuing landfill permit for K.C. operations.

V. COMMENTS - Management maintains that operating costs and capital costs must be minimal in order to provide a competitive service. Management has achieved this objective by acquiring obsolete chemical plants and facilities.

VI. SOURCE

Anonymous. Making Waste Treatment Pay Off. Chemical Week, 113:55-56, April 3, 1973.

Personal communication. Norman B. Hjersted, Conservation Chemical Company, to John P. Lehman, Office of Solid Waste Management Programs, November 11, 1974

Conservation Chemical Co. (3 locations)
215 West Pershing Rd., Suite 703, Kansas City, Mo. (816) 421-8494
Box 5472 St. Louis, MO 63160 (314) 241-7095
Box 6066 Gary, Indiana 46406 (219) 949-8229
Main Office (Chicago, Illinois) (312) 734-2741

I. BACKGROUND
   A. Service provided - Processing/treatment
   B. Service area - Extensive service area, wastes received from distances in excess of 1000 miles
   C. Date established - 1959 by Norman Hjersted
   D. Licensed by - state environmental and health agencies
   E. Organizational structure - No financial affiliations. Six degreed professional people

II. WASTE STREAMS
   A. Accept - Metal ion solutions, acids, caustics, arsenicals, cyanide, phenols, various sludges.
   B. Exclude - Based on tests and sample analyses
   C. Volume - Monthly reports available from local environmental agencies.

III. WASTE HANDLING
   A. Collection/hauling - Complete line of lined tanker trucks and trailers available. Fleet of tank cars also available.
   B. Receiving/storage - Facilities at Kansas City (8 million gal.), St. Louis, Gary, and Greensboro, N.C. 5 million gallons in storage in total. Drum and bulk wastes.
   C. Laboratory analysis - Sample and batch analysis done on each waste stream (facilities available in Gary, Indiana; another laboratory being opened in Kansas City. A number of outside labs used to supplement our own facilities.)
   D. Treatment
      ° Volume reduction (distillation/evaporation)
      ° Neutralization of acids,caustics
      ° Detoxification by chemical recombination
      ° Ferric chloride, copper oxide, potassium fluoride, ferrous chloride, ferric sulfate, and hydrogen fluoride recovery (large supplier of ferric chloride to municipal waste treatment facilities).
      ° 700,000 gal. per week
      ° Sludge wastes (inert) landfilled
      ° Other effluents deep well injected
   E. Disposal
      ° K.C. operations - Detoxified waste liquids and sludges allowed to separate.
      ° Supernatant evaporates.
      ° Solidified sludges are landfilled on site.

IV. ECONOMICS

A. User charges - Most inorganic wastes charged between 3¢ and 12¢ per gallon. Specific charges determined on individual basis, recognizing volume, concentration, complexity, etc. Some materials of good organic value of high metals concentration, taken in at no charge or paid.

B. Costs - Gross $3 million per year.

C. Resource recovery revenues - Unknown

D. Percent capacity - Ferric chloride recovery at 50% capacity (1973). Other capacity levels unknown.

E. Expansion potential - Examining sites in Tennessee, Colorado, and North Carolina. Pursuing landfill permit for K.C. operations.

V. COMMENTS - Management maintains that operating costs and capital costs must be minimal in order to provide a competitive service. Management has achieved this objective by acquiring obsolete chemical plants and facilities.

VI. SOURCE

Anonymous. Making Waste Treatment Pay Off. Chemical Week, 113:55-56, April 3, 1973.

Personal communication. Norman B. Hjersted, Conservation Chemical Company, to John P. Lehman, Office of Solid Waste Management Programs, November 11, 1974

REGION VIII

REGION IX

Casmalia Disposal Site
P.O. Box 5275
Santa Barbara, California 93108
(805) 969-4703 (Mr. Hunter or Mr. Cole)

I. BACKGROUND
   A. Services provided
      ° Treatment
      ° Disposal
   B. Service area - Santa Barbara County, California
   C. Operations started early in 1973
   D. Licensed by the State of California
   E. Organizational structure - Private firm. Management personnel and other affiliations, unknown. 24 hour service available upon request.

II. WASTE STREAMS
   A. Accept - Primarily oily wastes, oil field wastes, pesticides, and etchant wastes.
   B. Exclude - Unknown
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Not available
   B. Receiving/storage - Bulk shipments, usually on job lot bases, from vacuum tank truck carriers.
   C. Laboratory analysis - Not available
   D. Treatment - Limited to ponding, evaporation, spreading, and soil microbe degradation.
   E. Disposal - Landfill operation, with site monitoring wells and leachate surveillance.

IV. ECONOMICS
   A. User charges - 40¢ per 42 gal. barrel for oily wastes and 5¢ per gal. for special wastes.
   B. Costs - Unknown
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Unknown
   E. Expansion potential - Good, firm is interested in expanding service to handle all hazardous chemical wastes.

V. COMMENTS - Petroleum industry and some electronics are currently the only generators of waste chemicals in this area.

VI. SOURCE -

Personal communication. Mr. Cole, Casmalia Disposal Site, with Don Farb, Office of Solid Waste Management Programs, June 11, 1974.

Chancellor & Ogden, Inc. (A wholly-owned subsidiary of) B.K.K. Corp.
3031 East I St. (same address)
Wilmington, CA 90744
(213) 432-8461 (Mr. William Shearer)

I. BACKGROUND
- A. Services provided
  - ° Interim storage systems design
  - ° Collection/hauling
  - ° Disposal
- B. Service area - Western states & ICC authority for 50 states.
- C. Date established - 1922
- D. Licensed by the State of California
- E. Organizational structure
  - ° B.K.K., Inc., the parent company operates a 600-acre sanitary landfill in West Covina, County of Los Angeles, California
  - ° Chancellor & Ogden, Inc., is a wholly-owned subsidiary and is a bulk and vacuum tank liquid hauling firm.
  - ° Ben K. Kazarian, Jr. is the principal executive for both firms.

II. WASTE STREAMS
- A. Accept - Group 1 wastes as defined by the State of California
- B. Exclude - Radioactive wastes
- C. Volume - Upwards to 500,000 gals./day.

III. WASTE HANDLING
- A. Collection/hauling - Bulk and vacuum tank trucks operated by Chancellor & Ogden, Inc.
- B. Receiving/storage
  - ° Receive primarily bulk loads of liquids by truck.
  - ° Storage available in holding areas at terminal.
- C. Laboratory analysis
  - ° Mr. Charles Ruzakis is employed as firm's chemist
  - ° Wastes receive cursory examination for odor, flammability, explosiveness, and pH
- D. Treatment - No treatment prior to disposal
- E. Disposal - Landfill
  - ° 600-acre site located in and regulated by the City of West Covina and other state agencies.
  - ° Acids are accepted but discharged in separate location.
  - ° Site meets state requirements for Class I materials.
  - ° Natural clay strata.
  - ° Three monitoring wells have been placed in bed rock to monitor leachate activity.

IV. ECONOMICS
- A. User charges - rates posted at site and available upon request.
- B. Costs - Unknown

C. Percent capacity - Estimated 25 year life.
D. Resource recovery revenues - Unknown.
E. Expansion potential - Unknown.

V. COMMENTS - Management would like the Federal Government to develop a program that would insure uniform regulatory structures in all states.

VI. SOURCE -

Personal Communication. Mr. G. W. Shearer, Chancellor & Ogden Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 8, 1974.

Personal Communication. S. Morekas and T. Gross, Office of Solid Waste Management Programs, to the Record, October 12, 1973.

Environmental Protection Corp.
1801 Oak St., Rm. 18
Bakersfield, CA
(805) 327-9681 (Mr. William Park)

I. BACKGROUND
- A. Services provided - Disposal in Class II-I disposal farm
- B. Service area - Bakersfield and surrounding oil fields
- C. Date established - 11/1/71
- D. Licensed by the State of California and the county of Kern
- E. Organizational structure - Founded by W.H. Park, practicing geologist, R.A. Ganong, petroleum engineer, and L.W. Potter, waste hauler. Mr. Park is president and manager of another Class II-I disposal site near Taft, California for Bryant-Park and Associates, Inc.

II. WASTE STREAMS
- A. Accept - Refinery sludges, oil field wastes, oily water,(95% water) some organic solvents.
- B. Exclude - Inorganic chemical wastes and pesticides.
- C. Volume - 25,000- barrels per month

III. WASTE HANDLING
- A. Collection/hauling - not available
- B. Receiving/storage - Bulk wastes received by truck, no storage available.
- C. Laboratory analysis - not available
- D. Treatment - Soil incorporation - liquid wastes are sprayed on soil from tank truck then disked and mixed with earth. Application rate 10% oil by weight in the first 6 inches of soil.
- E. Disposal - Land spreading and soil incorporation. Each site consists of a series of 1- acre fields. Fields are rotated to allow evaporation and waste degradation: all site run-off is collected, facility constructed to withstand projected 500 year flood.

IV. ECONOMICS
- A. User charges
  - ° Oily wastes - 25¢/42 gal. barrel
  - ° Flammable, volatile and difficult to handle wastes 35¢/42 gal. barrel.
- B. Costs - Land and development - $100,000.
- C. Resource recovery revenues - Approximately $300. worth of oil is recovered per month from a screened and fenced sump operation.
- D. Expansion potential - Life of Taft and Bakersfield sites is indefinite.

V. COMMENTS - None

VI. SOURCE -
Personal communication. Mr. Park, Environmental Protection Corp., with Don Farb, Office of Solid Waste Management

Programs, June 7, 1974.

Personal communication. Mr. Park, Environmental Protection Corp., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 13, 1974.

Fresno County Dept. of Public Works
4499 East Kings Canyon Rd.
Fresno, CA 93702
(209) 488-3820 (K. D. Swarts)

I. BACKGROUND
   A. Services provided - Disposal of Agricultural Pesticide Containers.
   B. Service area - Central California
   C. Date established - Late 1973
   D. Licensed by the State of California
   E. Organizational structure - County operated site open twice a year, two weeks in the spring and two weeks in the fall. Site operators have been briefed by agricultural inspectors to recognize and handle various agri-chemical containers.

II. WASTE STREAMS
   A. Accept - Pesticide and fertilizer containers
   B. Exclude - Bulk liquid wastes
   C. Volume - Approximately 11,000 C.Y. to date after 3 site openings.

III. WASTE HANDLING
   A. Collection/hauling - not available
   B. Receiving/storage - not available
   C. Laboratory analysis - not available
   D. Treatment - no pre-treatment available
   E. Disposal - Land burial on 32 acre site with projected 40-50 year life. Tight clay soil with low rainfall, 8 to 10 inches per year. Depth to groundwater 400-500 ft., no monitoring required.

IV. ECONOMICS
   A. User charges - $0.75 per cubic yd. plus state fee based on 0.60/ton equivalent.
   B. Costs - $1.55 per cubic yd. (to date 10/1/74)
   C. Resource recovery revenues - not applicable
   D. Percent capacity - Site usage has been less than anticipated. Less than 1% of site capacity has been used.
   E. Expansion potential - No expansion beyond the existing site is anticipated at this time.

V. COMMENTS - This site was specifically set up for the disposal of pesticide containers.

VI. SOURCE -

Personal communication. Mr. Wade, Fresno County Dept. of Public Works, with Don Farb, Office of Solid Waste Management Programs, June 10, 1974.

Personal communication. Mr. K. D. Swarts, Fresno County Dept. of Public Works, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 14, 1974.

Hollister Disposal Site
Hollister, California 95203
(408) 637-4491 (San Benito City Hall, Mr. Grimsley)

I. BACKGROUND
   A. Services provided - Disposal
   B. Service area - Local waste generators, (within county)
   C. Date established - 1966
   D. Licensed Class I disposal site by the state of California. Waste haulers must be approved by City Hall.
   E. Organizational structure - Site operated by the county.

II. WASTE STREAMS
   A. Accept - Pesticide containers, off-spec missile propellant
   B. Exclude - Unknown
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Not available
   B. Receiving/storage - Receive car or truck load shipments, storage facilities not available.
   C. Laboratory analysis - Not available
   D. Treatment - Wastes do not receive treatment prior to burial
   E. Disposal - Landfill
      ° Hazardous waste site is a separate section of a sanitary landfill (115 acres)
      ° No special engineering, depth to water table, 220 ft; all site run off collected for treatment.
      ° Clay soil, low permeability
      ° 8 ft. of fill used for daily cover.

IV. ECONOMICS
   A. User charges - Vary according to waste characteristics
   B. Costs - Unknown
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Initial projected site lifetime was 50 years, subsequent increases in waste generation rates have decreased life expectancy by 10 years.
   E. Expansion potential - Unknown

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Grimsley, Hollister Disposal Site, with Don Farb, Office of Solid Waste Management Programs, June 5, 1974.

Industrial Tank, Inc.
P.O. Box 831
310 Berrellesa St.
Martinez, CA 94553

J & J Disposal, Inc.
P.O. Box 885
Lake Herman Rd.
Benicia, CA 94510

(415) 228-5100 (Barney Simonsen or Victor Johnson)

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Receiving/storage
  - ° Treatment
  - ° Reclamation
  - ° Disposal
- B. Service area - San Francisco Bay area and Pacific Coast.
- C. Date established - 1949
- D. Licensed by California Dept. of Public Health
  California Water Quality Control Board
  Bay Area Air Pollution Control District
- E. Organizational structure - Initially developed to handle petroleum industry wastes. Operates three Class I disposal sites in Benicia, Martinez and Antioch. Disposal staff includes two civil engineers, mechanical engineer, chemical engineer and 5 chemists. Emergency 24 hour response to spills.

II. WASTE STREAMS
- A. Accept - Waste oil, petroleum, steel, electronics and most other Class I industrial liquid wastes. Methods are developed as needed to handle extremely hazardous wastes.
- B. Exclude - Solids, radioactive waste
- C. Volume - Currently 180,000 bbl. per month (42 gallons = 1 bbl.)

III. WASTE HANDLING
- A. Collection/hauling - Operate 16 vacuum trucks of 4600-5000 gallon capacity, 4 acid trucks of 5000 gal. capacity, and 4 small vacuum trucks.
- B. Receiving/storage - Receive by truck or barge. Storage capacity 5,000 bbl. for barge, 10,000 bbl. at plant for trucks.
- C. Laboratory analysis - State Certified laboratory with atomic absorption and analysis capability for samples and quality control of treatment.
- D. Treatment - Chemical degradation
  - ° Neutralization and precipitation emphasizing controlled blending and mixing.
  - ° Oil reclamation and recovery
  - ° Residues and by products forwarded to landfill site.
  - ° Volume reduction by evaporation
  - ° Steam stripping of volatiles.
  - ° Precipitation of fluoride etchants as CaF_2.
  - ° Incineration of treatment plant off gases.

E. Disposal
- ° Evaporation ponds constructed in clay strata
- ° Complete monitoring and leachate surveillance
- ° Capacity approximately 200,000 bbl./mo.;when pond residue accumulates they are disposed of in landfill areas.
- ° Some materials are biodegraded by spreading on earth plots inside ponds and plowed under.

IV. ECONOMICS
- A. User charges - Approximately $0.70 per 42 gallon barrel. Highly toxic wastes handling will cost more.
- B. Costs - unknown
- C. Resource recovery revenues - unknown
- D. Percent capacity - Available evaporation ponds nearing capacity.
- E. Expansion potential - Firm has completed installation of 4,000 gallon/day incinerator to handle flammable liquids and recover steam. Currently seeking a permit to open a replacement site for an existing ponding facility near Antioch. Firm is examining feasibility of recovering other resources.

V. COMMENTS - J & J Disposal Co. closed by state due to leaking holding basins. Industrial Tank has assumed control of J & J and is initiating corrective engineering so J & J site may continue to serve two refineries nearby.

VI. SOURCE -

Personal communication. Mr. Simonsen, Industrial Tank, Inc., with Don Farb, Office of Solid Waste Management Programs, June 20, 1974.

Personal communication. Mr. Barney Simonsen, Industrial Tank, Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 15, 1974.

County Sanitation Districts of
Los Angeles County
P.O. Box 4998
Whittier, California 90607
(213) 699-7411; From Los Angeles (213) 685-5217
(Mr. Frank R. Dair)

I. BACKGROUND
- A. Services provided - Disposal
- B. Service area - Los Angeles County
- C. Date established - Palos Verdes landfill opened in 1957; Calabasas landfill opened in 1961.
- D. Licensed by the State of California
- E. Organizational structure
  - ° Both sanitary landfills are operated by the County Sanitation Districts of Los Angeles County.
  - ° The Palos Verdes landfill is located in the City of Rolling Hills Estates.
  - ° The Calabasas landfill is located in an unincorporated area near the town of Agoura.

II. WASTE STREAMS
- A. Accept - All group 1 wastes, except as noted below
- B. Exclude (Palos Verdes)
  - ° Wastes with pH less than 4 and greater than 11.
  - ° Highly odorous, highly flammable, explosive and high temperature wastes.
  - ° Magnesium
  - ° Loads containing a wide variety of chemical wastes, each in relatively small quantities and separate containers.

  Exclude (Calabasas)
  - ° Explosives and magnesium
  - ° Loads containing highly odorous or highly flammable wastes.
  - ° Concentrated acids and alkalines.
- C. Volume - Palos Verdes landfill - 1,300,000 tons of solid waste and 280,000 tons of liquids annually.
  Calabasas landfill - 320,000 tons of liquids annually.

III. WASTE HANDLING
- A. Collection/hauling - Not available
- B. Receiving/storage - Receive bulk or drummed wastes by truck.
- C. Laboratory analysis - Wastes receive pH, odor explosivity and flammability tests before being accepted.
- D. Treatment - Wastes do not receive treatment prior to disposal
- E. Disposal - Landfill
  - ° Sites meet geological conditions described for Class I sites.
  - ° Monitoring wells for leachate surveillance.
  - ° At Palos Verdes, wastes are typically delivered by vacuum tanker truck and discharged into a diked area of municipal refuse.

Front-end loaders are not used in landfilling operations. Area is covered at the end of each day.

IV. ECONOMICS
- A. User charges - Fees at Palos Verdes and Calabasas are $3.00 per ton with the minimum charge being $2.00 No special fee is charged for loads delivered in drums.
- B. Costs - Unknown
- C. Resource recovery revenues - Unknown
- D. Percent capacity - Palos Verdes Class I area will be filled by approximately January 1976. Calabasas has a projected life of 25 to 30 years in the Class I area.
- E. Expansion potential - District personnel are investigating various alternatives for disposing of liquid industrial wastes.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Frank R. Dair, County Sanitation Districts of Los Angeles County, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 21, 1974.

Omar Rendering Co.
P.O. Box 1236
Chula Vista, California
(714) 422-5311 (Mr. William O'Donnell)

I. BACKGROUND
   A. Services provided
      Collection/hauling
      ° Processing/treatment
      ° Disposal
   B. Service area - San Diego area
   C. Initiated chemical waste handling in 1964
   D. Licensed by the State of California
   E. Organizational structure - Firm established in early 50's to handle packing and slaughter house wastes. (Still compromises majority of their waste volume). Maintain a three shift, 24 hr. per day operation.

II. WASTE STREAMS
   A. Accept - Acids, caustics, solvents, cleaners, etchant wastes (electronics industry) - liquids only.
   B. Exclude - No exceptions noted
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Maintain a fleet of vacuum tank trucks for collection and hauling
   B. Receiving/storage - Receive drum or bulk wastes (liquids only). Receiving basins available, (capacity unknown).
   C. Laboratory analysis - Service not available, rely on waste generator's analyses.
   D. Treatment - Evaporation ponds (capacity unknown)
      ° Highly toxic wastes, e.g., cyanide, drummed and forwarded to Beatty, Nevada.
      ° Ponding residuals trucked to a company operated open pit. (No pre-treatment)
   E. Disposal - Open pit
      ° Ponding residuals trucked to an open pit clay excavation area. (Excavated clay used for evaporation pond construction).
      ° Site permeability - 10^{-7} in./hr.
      ° Monitoring in compliance with state specifications.

IV. ECONOMICS
   A. User charges - $40.00 per 1000 gal. (2000 gal. minimum)
   B. Costs - Unknown
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Unknown
   E. Expansion potential - Unknown

V. COMMENTS - Evaporation ponds are unlined. 1 inch of leachate penetration in six years.

VI. SOURCE -

Personal communciation. Mr. Ed Stare, Omar Rendering Co., with Mr. Don Farb, Office of Solid Waste Management Programs, June 20, 1974.

Richmond Sanitary Service
1224 Nevin Ave.
Richmond, California
(415) 234-3304 (Mr. Aquilino)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Disposal
   B. Service area - San Francisco Bay area.
   C. Date established - 1949
   D. Licensed by the State of California
   E. Organizational structure - Firm deals in municipal refuse disposal and hazardous waste disposal.

II. WASTE STREAMS
   A. Accept - Refinery wastes, acid plating solutions, tetra-ethyl lead sludge, solvents, pesticide and chemical containers, and other state of California group I wastes.
   B. Exclude - Exceptions as noted in California Class I landfill regulations and other wastes depending on analysis.
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Flat bed trailer for drummed wastes.
   B. Receiving/storage - Receive drummed and bulk wastes. Holding pond storage for bulk wastes.
   C. Laboratory analysis - Rely on waste generator's analyses.
   D. Treatment - No waste treatment.
   E. Disposal - Landfill
      Present site contains approx. 890 acres of marshland, tidelands, and bay fill.
      ° Drummed wastes are buried as is.
      ° Bulk wastes are discharged into holding ponds and filled.
      ° Discharge of uncontainerized group I wastes is prohibited.
      ° Conditions exist which appear to preclude leachate migration to useable groundwater. (low permeability, confined conditions, and an upward direction of flow exist.)
      ° Annual run off and flooding conditions are controlled.

IV. ECONOMICS
   A. User charges - Based on waste analysis.
   B. Costs - Unknown
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Unknown
   E. Expansion potential - Space available, long range plans include use of available space.

V. COMMENTS - State Dept. of Public Health has noted a reluctance on the part of Richmond management to comply with the letter and spirit of existing statutes.

VI. SOURCE -

Personal Communication. Richmond Sanitary Service Representative, with Don Farb, Office of Solid Waste Management Programs, July 1974.

San Diego County Refuse Disposal
5555 Overland Rd.
San Diego, CA
(714) 565-5703

I. BACKGROUND
   A. Services provided - disposal
   B. Service area - San Diego County
   C. Date established - in the early 60's
   D. Licensed by the State of California
   E. Organizational structure - Operated by San Diego County

II. WASTE STREAMS
   A. Accept - Pesticides and other chemical wastes, except as noted below.
   B. Exclude - Cyanide, explosives, and radioactive wastes.
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - not available
   B. Receiving/storage - Bulk or drum by truck. Holding pond storage available.
   C. Laboratory analysis - not available
   D. Treatment - Available treatment limited to volume reduction by evaporation.
   E. Disposal - Landfill
      - All wastes to be buried are drummed and placed in an abandoned mine excavation (native bentonite clay)
      - 2-3ft. of bentonite used as cover on each cell.
      - Liquid wastes are discharged into 2 large unlined evaporative ponds, (one pond currently full). To date, it has not been necessary to remove pond residues, but the issue will have to be addressed in near future since one pond is nearly full.

IV. ECONOMICS
   A. User charges - 20¢/ft.^{3} or 6¢/gal.
   B. Costs - Unknown
   C. Resource recovery revenues - Not applicable
   D. Percent capacity - Landfill projected lifetime - 11 yrs. One holding pond nearly full.
   E. Expansion potential - Management plans to seek permission to fill certain sludges following neutralization or other chemical degradation treatment. Plan to improve site operations by employing a site operator that is familiar with hazardous wastes. An operations manual is also being prepared.

V. COMMENTS - Area flood during winter of 73-74 caused the holding ponds to overflow (oil wastes). Extra material has been added to pond berm to prevent overflow. Some leachate migration was noted the year prior to the flood. Currently drilling a test well to determine groundwater level. Site is located near county landfill.

Ventura Regional County Sanitation District
P.O. Box AB
Ventura, California
(805) 648-2717 (John A. Lambie)

I. BACKGROUND
- A. Services provided - disposal
- B. Service area
  - ° Ventura County
  - ° Los Angeles County: Mostly flammables
  - ° Santa Barbara County: Class I wastes only
  - ° Kern County: Class I wastes only
- C. Date established - January 17, 1971
- D. Licensed by the State of California
- E. Organizational structure
  - ° Operated by Ventura Regional County Sanitation District (special district - Ventura County only - created by state charter.) District also operates a liquid waste pre-treatment facility to handle septic tank cleanings and chemical toilet wastes.

II. WASTE STREAMS
- A. Accept
  - ° Waste accepted based upon review and screening or clearance procedure.
  - ° Accepted wastes include solvent sludges, pesticide containers, epoxy, chlorinated bi-phenols, cyanide, plating wastes, polyester resins, acids, etc.
- B. Exclude - radioactive materials and materials considered unsafe through the screening procedure.
- C. Volume - varies

III. WASTE HANDLING
- A. Collection/hauling - not available.
- B. Receiving/storage - not available.
- C. Laboratory analysis - pH and explosive capability are determined at the site: contents of each wastestream must be known and if needed, analysis may be performed by chemical consultants.
- D. Treatment - Wastes do not receive treatment before disposal.
- E. Disposal - Landfill
  - ° Site geology, hydrology and monitoring meet all state prerequisites for Class I sites.
  - ° Waste burial plots mapped and inventoried.
  - ° Well monitoring is practiced.
  - ° Bulk liquids spread on soil in thin layer and allowed to dry off.
  - ° Highly toxic wastes buried in containers that are used to bring them in.

IV. ECONOMICS

A. User charges - $7.70 per ton plus 60¢ per ton for State Health Department fees with $1 minimum. $25 application fee charged to hauler for each new waste received (empty pesticide containers exempt.) Fee covers administrative costs. Extra costs incurred in specific disposal are charged to the haulers. This may include lab tests.

B. Costs - To be evaluated.

C. Resource recovery revenues - not applicable.

D. Percent capacity - Estimated remaining life = 10 years.

E. Expansion potential - District is considering an additional site in western part of county.

V. COMMENTS - The District is conducting a demonstration program for Hazardous Waste Management in the county funded by EPA.

VI. SOURCE -

Personal communication. Mr. Mike Williams, Ventura Regional County Sanitation District, with Don Farb, Office of Solid Waste Management Programs, June 24, 1974.

Personal communication. Mr. Phillip Beautrow, Ventura Regional County Sanitation District, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 26, 1974.

Nuclear Engineering Co., Inc.
Main Offices: West Coast - Box 156
San Ramon, California 94583
(415) 837-1561 (Mr. G. S. Williamson)

East Coast - Box 7246
Louisville, Kentucky 40207
(502) 426-7160 (Mr. A. Crase)

Burial sites - Morehead, Kentucky;
Sheffield, Illinois;
Beatty, Nevada;
Richland, Washington;
Robstown, Texas

I. BACKGROUND
- A. Services provided
  - ° Collection/hauling
  - ° Disposal
- B. Service area - Nationwide
- C. Date established - Approximately 1958
- D. Licensed by state health and environmental authorities
- E. Organizational structure - Primarily radioactive waste (low level) burial service, firm has developed disposal service for chemical wastes at Beatty, Nevada and at Sheffield, Illinois. Owns subsidiary waste disposal firm, Texas Ecologists, Robstown, Texas, which handles only non-radioactive hazardous wastes.

II. WASTE STREAMS
- A. Accept - Radioactive wastes, pesticides, organic wastes, misc. toxic chemicals, heavy metals, (solids primarily, liquids accepted following state review).
- B. Exclude - Highly reactive sodium and potassium.
- C. Volume - No specific limit - depends on type and composition.

III. WASTE HANDLING
- A. Collection/hauling - Service available
- B. Receiving/storage - Warehousing available (18,000 sq. ft.). Mostly drummed waste.
- C. Laboratory analysis - Spot checks as required.
- D. Treatment - No pre-treatment prior to burial

E. Disposal - Land burial
- ° Burial sites, clay strata, low permeability, clay liners.
- ° 30 ft. trenches, drums lowered in by crane and surrounded by 3x their volume of dry clay.
- ° Beatty site 350 ft. to groundwater, 150 ft. of clay below trenches - 2-4 in. of rain per year (unlimited capacity).
- ° Monitoring wells checked every 2 weeks.

IV. ECONOMICS
- A. User charges - Transportation cost - Approximately $1.00/mile per 40,000 lb. truck. Burial charges $1.25 to $1.75 per ft.^{3}.
- B. Costs - unknown
- C. Resource recovery revenues - Not applicable
- D. Percent capacity - Sheffield site newly opened. Beatty site capacity unlimited.
- E. Expansion potential - Ample land available.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., with Don Farb, Office of Solid Waste Management Programs, June 20, 1974.

Personal communication. Mr. Williamson, Nuclear Engineering, Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 8, 1974.

REGION X

Wes Con, Inc.
245 Third Ave. East
Twin Falls, Idaho 83301
(208) 733-0897 (Gene Rinebold)
(site: Grandview, Idaho)

I. BACKGROUND
- A. Service provided - Disposal
- B. Service area - Northwest and intermountain region
- C. Date established - Unknown
- D. Licensed by the State of Idaho
- E. Organizational structure - Partnership arrangement with president of Chemical Supply Co. Latter is well established as a chemical firm with management experience in petroleum industry and economics.

II. WASTE STREAMS
- A. Accept - Class B pesticides, potato sprout inhibiting chemical, caustic sludge
- B. Exclude - Radioactive wastes, poison gases (chemical warfare)
- C. Volume - Very small, trying to establish contacts

III. WASTE HANDLING
- A. Collection/hauling - Currently not available, will make arrangements if necessary
- B. Receiving/storage - Receive by truck only, no storage available on site, immediate disposal (drum or bulk acceptable).
- C. Laboratory facilities - Unknown to date
- D. Treatment - No treatment at Grandview site
- E. Disposal - Wastes are disposed of in old missile silos. 13 holes with 6ft. walls and 13ft. floors of reinforced concrete on a 100 acre site. 1.5 mill. $ft.^3$ capacity. Bentonite clay available to contain liquids if necessary. 3,200 ft. to groundwater.

IV. ECONOMICS
- A. User charges - \$1.00/$ft.^3$ but may vary depending on waste. To date charges have been reduced to break even point to encourage interest (e.g., quoted state of Alaska a price of \$100.00 to handle 3 tons of DDT, FOB, Twin Falls.)
- B. Costs - Unknown
- C. Resource recovery revenues - None to date
- D. Percent capacity - Just starting up; still looking for customers
- E. Expansion potential - Develop some of site's 100A for sanitary landfill, current arrangements with local agencies preclude this development.

V. COMMENTS - None

VI. SOURCE -
Personal communication. Mr. Gene Rinebold, Wes Con Inc., with Mr. Don Farb, Office of Solid Waste Management Programs, June 28, 1974.

Chemical Processors, Inc.
5501 Airport Way South
Seattle, Washington 96108
(206) 767-0350 (Mr. Newt Clark)

I. BACKGROUND
   A. Services provided - Processing/treatment
   B. Service area - Greater Seattle, Washington state and Pacific Northwest.
   C. Date established - 1959; Management change in 1970 to present name.
   D. Licensed by the State of Washington
   E. Organizational structure - Firm operates two plants in Seattle (South Seattle and Elliot Bay)
      ° Major supplier of industrial fuel oil for Pacific Northwest.
      ° Operate small oil reclamation facility.

II. WASTE STREAMS
   A. Accept - Solvents, oils, resins, halogenated solvents, heavy metals, arsenic, pesticides, cyanide.
   B. Exclude - Radioactive wastes
   C. Volume - Partial list of volume includes - 2,500 barrels crankcase oil; 10,000 barrels of ship waste oil; 10 railcar tankers; and 20 bulk tank trucks of waste per month.

III. WASTE HANDLING
   A. Collection/hauling
      ° Firm will pickup only full truck load shipments. Partial loads are forwarded by generator to collection and transfer facilities in Seattle, eastern Washington, or Oregon.
      ° Firm maintains a fleet of trucks with either flat bed, tank, or special sludge handling trailers.
   B. Receiving/storage
      ° Receive by truck, rail or barge both bulk and drum consignments.
      ° Storage capacity 10 million gal.
   C. Laboratory analysis - Available for sample analyses and quality control.
   D. Treatment - Specialize in evaporation and distillation recovery of solvents (halogenated and non-halogenated) and oil. Facility includes a converted paint production plant (built 1959), complete with chemical separation and petroleum fracturing towers.
   E. Disposal - All non-recoverable wastes and reclamation by-products shipped to Pasco, Washington (Resource Recovery Corporation). Approximately 5 tank trucks per day.

IV. ECONOMICS
   A. User charges - Quotations furnished upon request
   B. Costs - Vary, but general operating costs are: $5.00 per barrel for oil reclamation and 30¢/gal. for solvent recovery

C. Resource recovery revenues - Revenues unknown
D. Percent capacity - Below capacity, specific amount unknown
E. Expansion potential - Good, intentions unknown

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Newt Clark, Chemical Processors, Inc., to Mr. Emery Lazar, Office of Solid Waste Management Programs, January 23, 1973.

Resource Recovery Corporation
(site) Pasco, Washington
(offices) 5501 Airport Way So.
Seattle, Washington, 98108
(206) 767-0355 (Mr. Kimberly)

I. BACKGROUND
   A. Services provided
      ° Collection/hauling
      ° Disposal
   B. Service area - Pacific Northwest
   C. Date established - 1975
   D. Licensed by - Washington State Dept. of Public Health and Ecology and Benton-Franklin County Public Health Dept.
   E. Organizational structure - Majority stock holder is Chemical Processors, Inc. of Seattle.

II. WASTE STREAMS
   A. Accept - Paint, solvents, and resin sludges, metal salts, and plating wastes.
   B. Exclude - No exceptions, must receive approval before disposing of pesticides.
   C. Volume - Unknown

III. WASTE HANDLING
   A. Collection/hauling - Transportation service available (tank trucks).
   B. Receiving/storage - Receive primarily bulk truck deliveries- Waste transfer and staging stations available in Seattle and Oregon.
   C. Laboratory analysis - Done by parent company, Chemical Processors, Inc.
   D. Treatment - Volume reduction by evaporation. Other treatment services provided by parent company.
   E. Disposal
      ° Pond residues and other received wastes are buried on site (natural silt cover). 140A site, 40A currently being used. 15 year capacity.
      ° No discharge from site - Ponds lined with hypalon and underlaid with electronic sensors for leachate monitoring.
      ° Evaporation exceeds precipitation.
      ° 40-50 ft. to groundwater.

IV. ECONOMICS
   A. User charges - Bulk - liquid and sludges $.45/CWT, 55 gallon drums - $1.75 a drum for disposal. Hauling charges vary depending on distance.
   B. Costs - unknown
   C. Resource recovery revenues - not applicable

D. Percent capacity - unknown
E. Expansion potential - Good based on favorable public acceptance.

V. COMMENTS - Recent concern by area grape growers has persuaded local authorities to revoke firm's hazardous waste disposal permit. Grape growers are concerned about the burial of 2-4-D sludges. State Dept. of Ecology has been unable to establish cause/effect relationship between grape production and waste disposal. Company will be allowed to continue disposal until December 31, 1974. Company is currently negotiating for a new site also located in eastern Washington. It is working to get the site operational before December 31, in order to prevent an interruption in its business. State authorities would like to see a hazardous waste disposal site established in eastern Washington.

VI. SOURCE -

Personal communication. Mr. J. R. Kimberly, Resource Recovery Corporation, with Don Farb, Office of Solid Waste Management Programs, June 18, 1974.

Personal communication. Mr. J. R. Kimberly, Resource Recovery Corporation, to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 5, 1974.

Western Processing Co., Inc.
7215 South 196th
Kent, Washington 98031
(206) 852-4350 (Mr. G. J. Nieuwenhuis)

I. BACKGROUND
   A. Services provided - processing/treatment/disposal.
   B. Service area - British Columbia, Washington, Oregon, Idaho, Montana, California
   C. Date established - 1957
   D. Organizational structure
      ° Corporation
      ° Mr. G. J. Nieuwenhuis, President
      ° Mr. G. J. Nieuwenhuis has 7 patents to his name for processing and reclamation. One patent has been granted in 14 countries.
      ° A management group is handling the day-to-day operation.

II. WASTE STREAMS
   A. Accept - Plating shop waste, pickle liquor, any heavy metal solution, flue dust, metal skimmings, oils and solvents - in general all wastes except as noted below.
   B. Exclude - Beryllium, radioactive waste.
   C. Volume - 400,000-500,000 gallons liquids per month and 5000 tons dry products per year.

III. WASTE HANDLING
   A. Collection/hauling
      ° By common carrier
      ° By collection firms
   B. Receiving/storage - Prefer truck load bulk shipments 5-1/2 mil. gallons storage available.
   C. Laboratory analysis service available, sample analysis and processing chemical control.
   D. Treatment - Chemical detoxification
      ° Employ a variety of chemical reactions with physical blending and mixing to achieve saleable products including zinc sulfate, zinc chloride, sodium dichromate, fire retardents for wood, solvents, lube oil, trace elements for fertilizer, zinc and aluminum metal.
      ° Only discharge is clean water meeting EPA standards - No dumping of heavy metals or other waste.
      ° Seven patents on waste processing.
   E. Disposal - Company emphasizes recovery as opposed to destruction. No discharges except clean water.

IV. ECONOMICS
   A. User charges - Charges based on waste analysis.
   B. Costs depend on reclamation value and ease of recovery - from 0 to 12¢ per gallon for plating shop waste and 50¢ per gallon for cyanide waste. Some items are being paid for

according to metal content.

C. Resource recovery revenues - Unknown

D. Percent capacity - Unknown

E. Expansion potential - Currently operate on a 13 acre site, room available to expand, with 20 acres.

V. COMMENTS - None

VI. SOURCE -

Personal communication. Mr. Nieuwenhuis, Western Processing Co., Inc., with Don Farb, Office of Solid Waste Management Programs, May 30, 1974.

Personal Communication. Mr. Nieuwenhuis, Western Processing Co., Inc., to Mr. John P. Lehman, Office of Solid Waste Management Programs, November 7, 1974.

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